UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Technical Orientation Meeting

09 June 2009

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Ground Rules and Procurement Communication Process

Dave Downs | Design Build Manager

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Ground Rules for Questions

1. The Final RFP rules
2. No questions relative to procurement or the RFP during presentation
3. Follow the communication protocol for technical or informational questions

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Transfer of Information

- Password protected web-sharing site
- Security
  - User name and password with both read and write privileges
  - User name and password with read only privilege

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Technical Orientation and Project Overview

Dan Dixon| Design Services Manager

UDOT

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Morning Schedule

Design Presentation – Technical Team

Break

Design Presentation cont. – Technical Team

Questions and Answers – David Downs

Lunch

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Afternoon Schedule

Welcome – Dal Hawks

Ground Rules – David Downs

Utilities Presentation – Rod Brocious and Kevin Francis

Third Parties Introductions – Rod Brocious

Questions and Answers – David Downs

I-15 CORE Technical Team

- Merrell Jolley – Engineering Director
- Dan Dixon – Design Manager
  - Roadway: Brian Atkinson, Laren Livingston
  - Signing: Laren Livingston
  - Traffic: Luis Porrello, Rob Clayton
  - Environmental: Derek Hamilton
  - Drainage: Jonathan Clegg
  - Structures: Larry Reasch

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I-15 CORE Technical Team cont.

- Dan Dixon – Design Manager
  - Geotechnical: Brad Price
  - ATMS and ETC: David Jones
  - Aesthetics and Landscaping: Brian Elrod
  - Third Parties: Rod Brocious, Kevin Francis
  - Public Involvement: David Smith
  - Concurrent Projects: Shane Marshall

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Ultimate Infrastructure Configuration – Concept

- Develop conceptual design consistent with FEIS ROD and 404 Permit commitments
- Establish ROW and prioritize acquisition
- Identify and address risks and opportunities
  - Utilities, Drainage, Geotechnical, Environmental
- Additional commitments and agreements required to progress the project
- Conceptual Design depicted in Informational Documents is one approach

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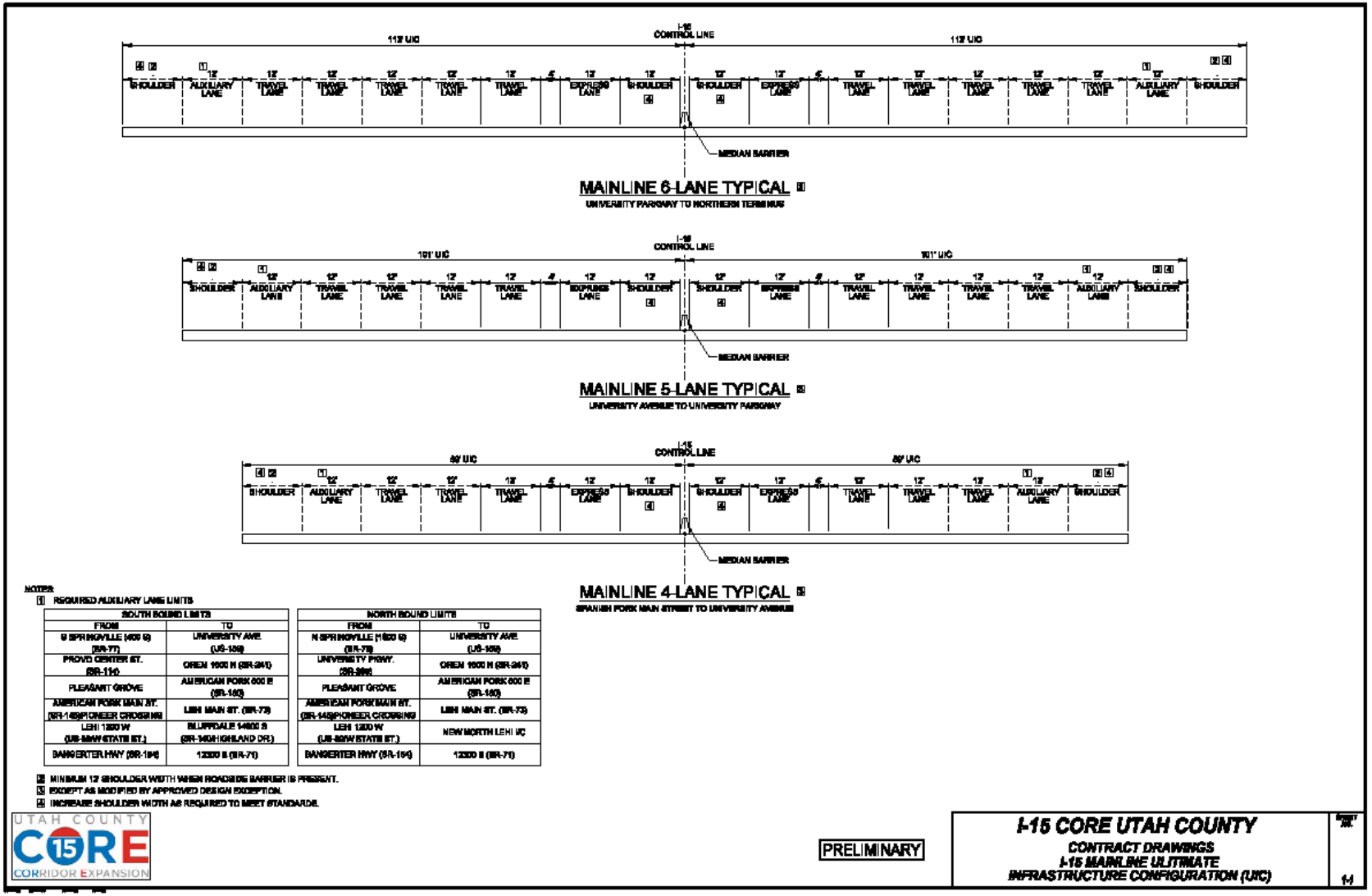
Ultimate Infrastructure Configuration – Concept



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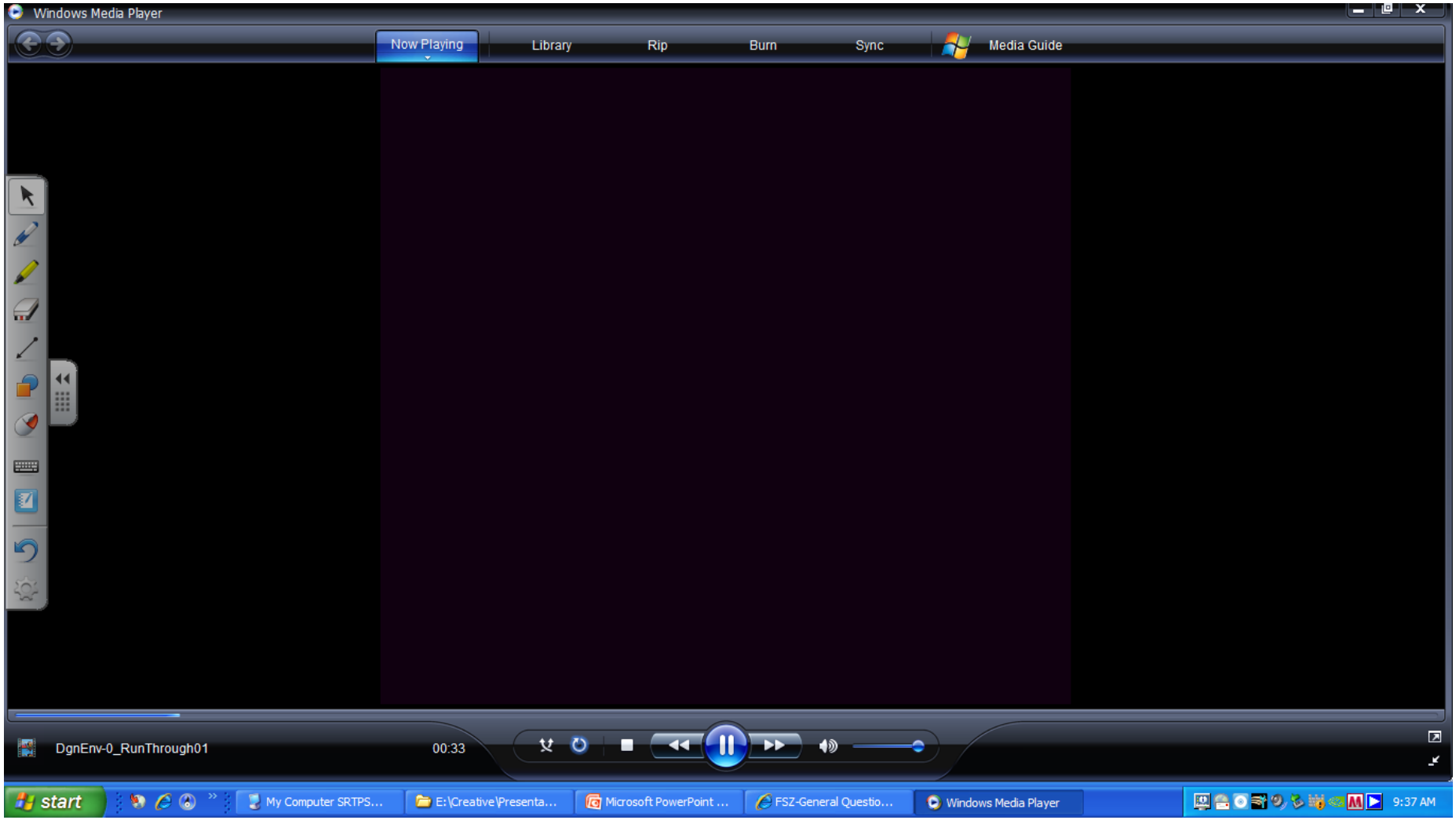
3D Immersive Tool



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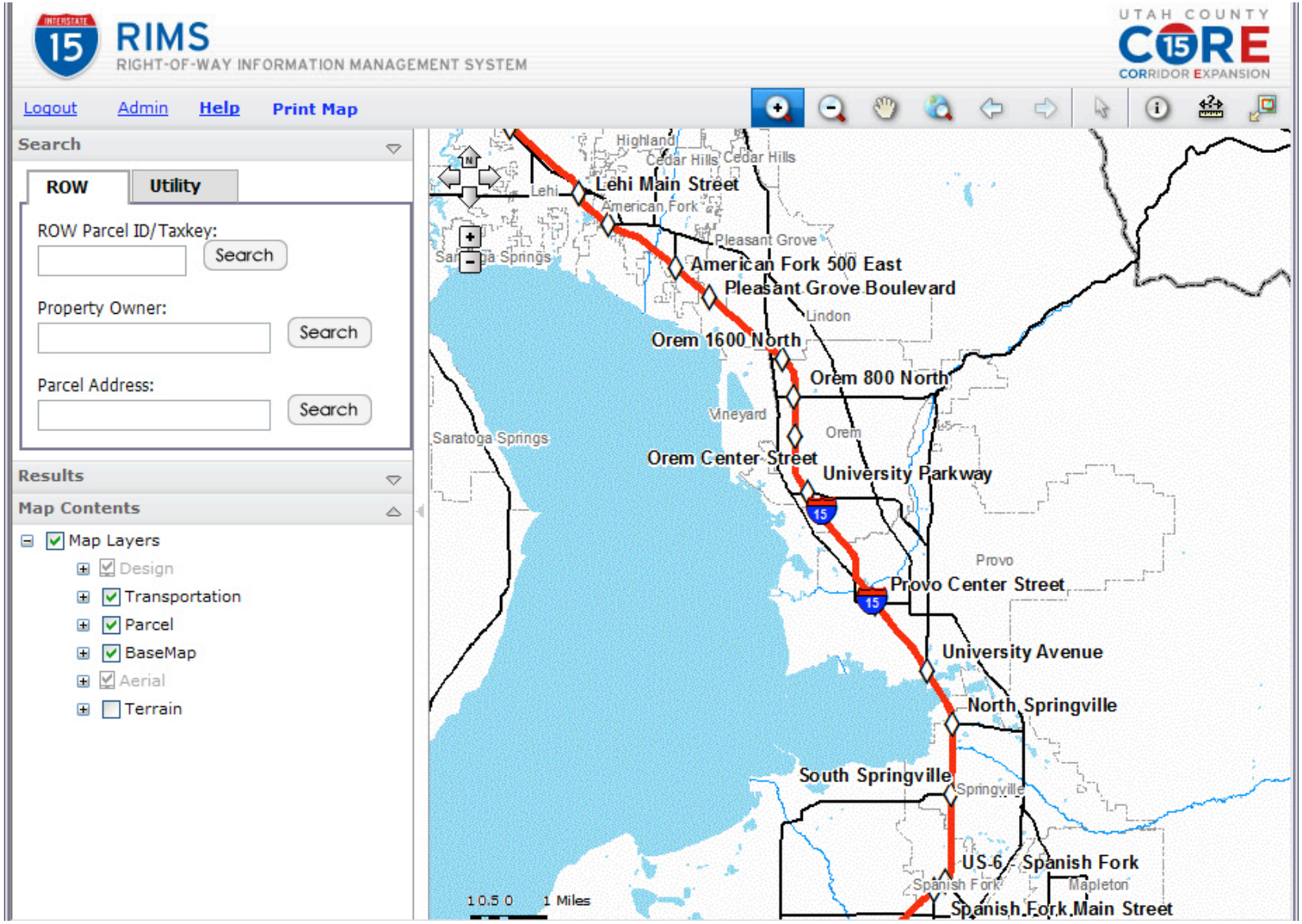
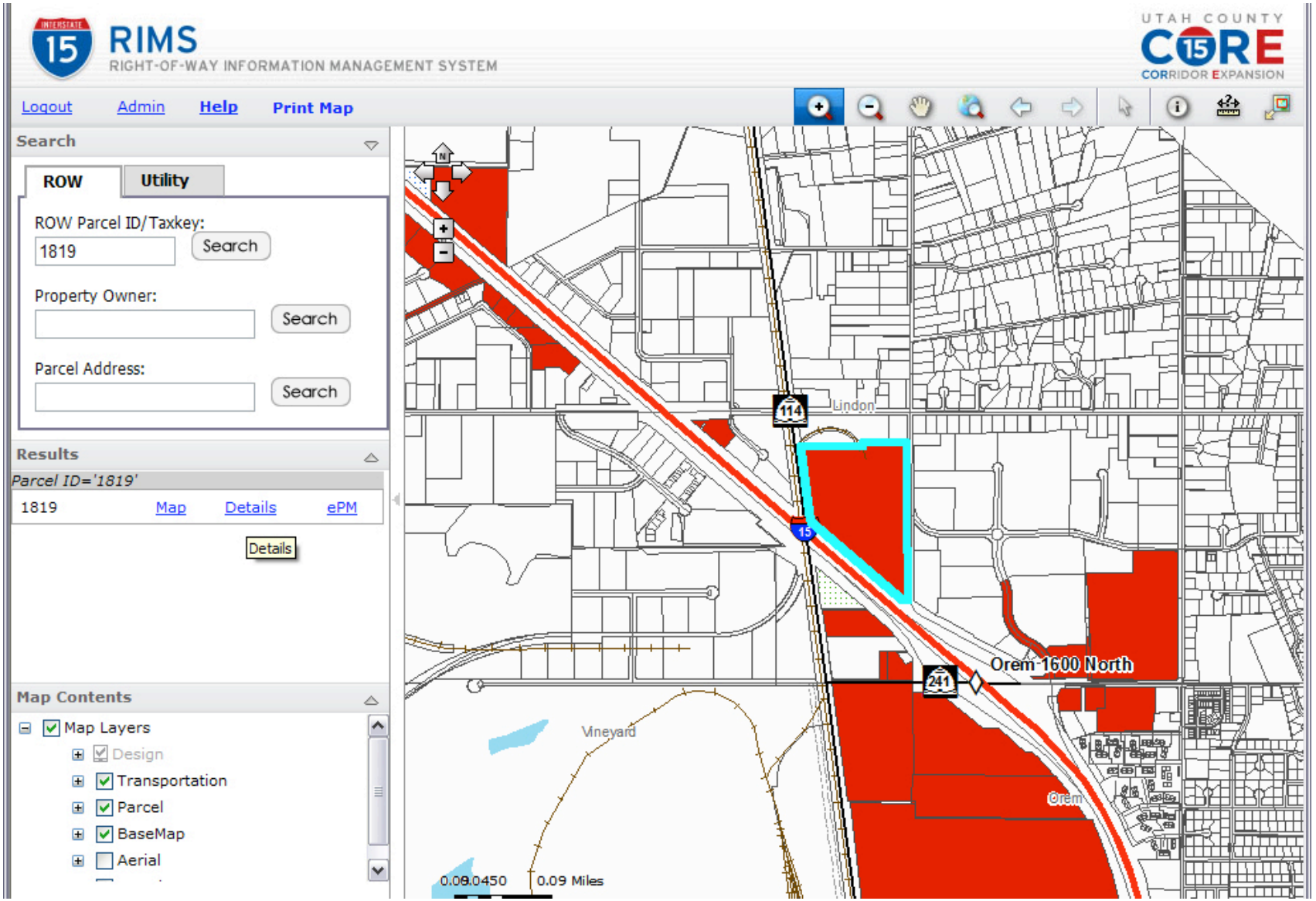
Preconstruction Surveys

- Coordinated with OCIP management
- Property owner authorization
- Documentation shared with property owner
- Confirmation prior to beginning construction in vicinity
- Web based access

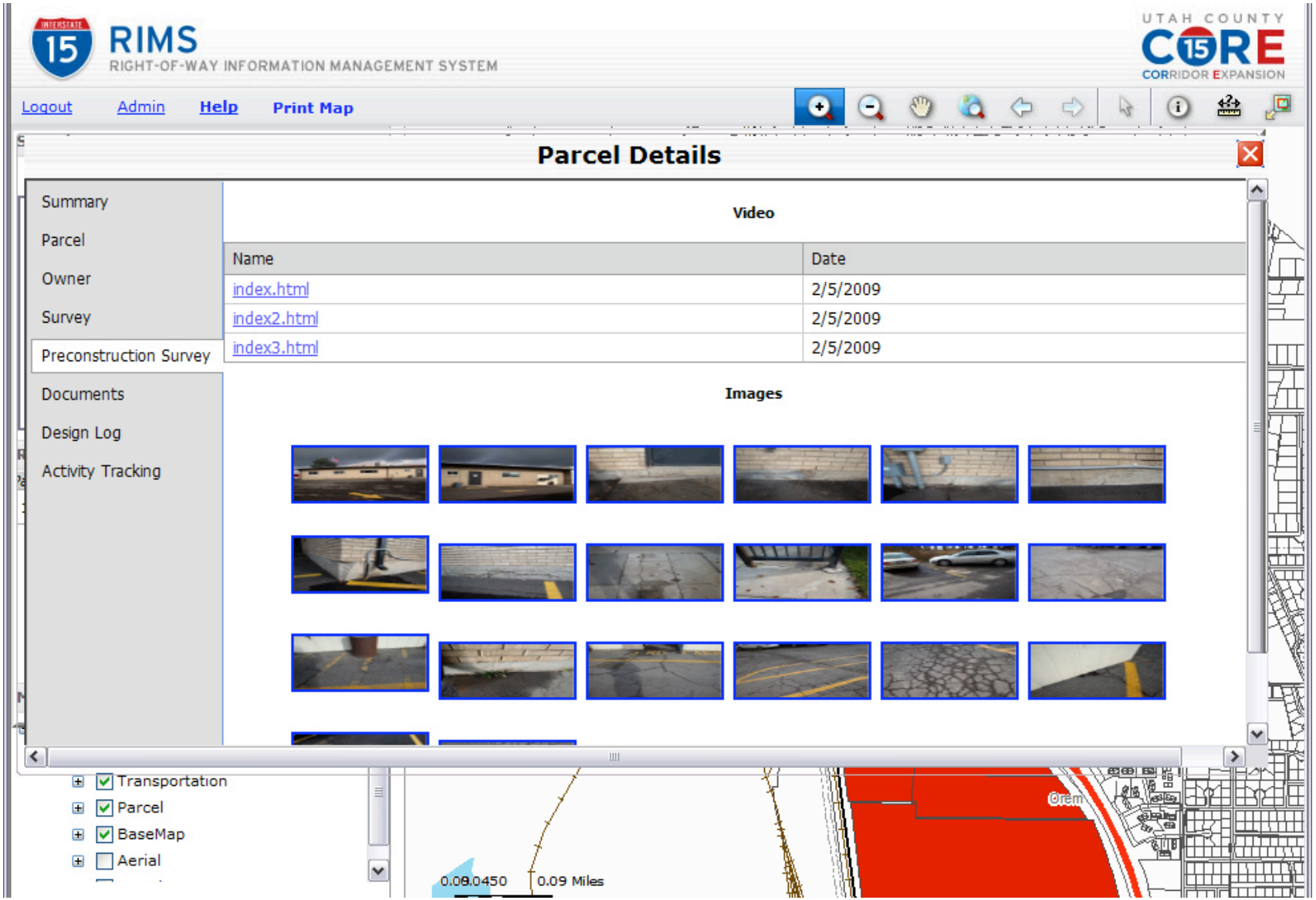
RIMS Software



RIMS Software



RIMS Software



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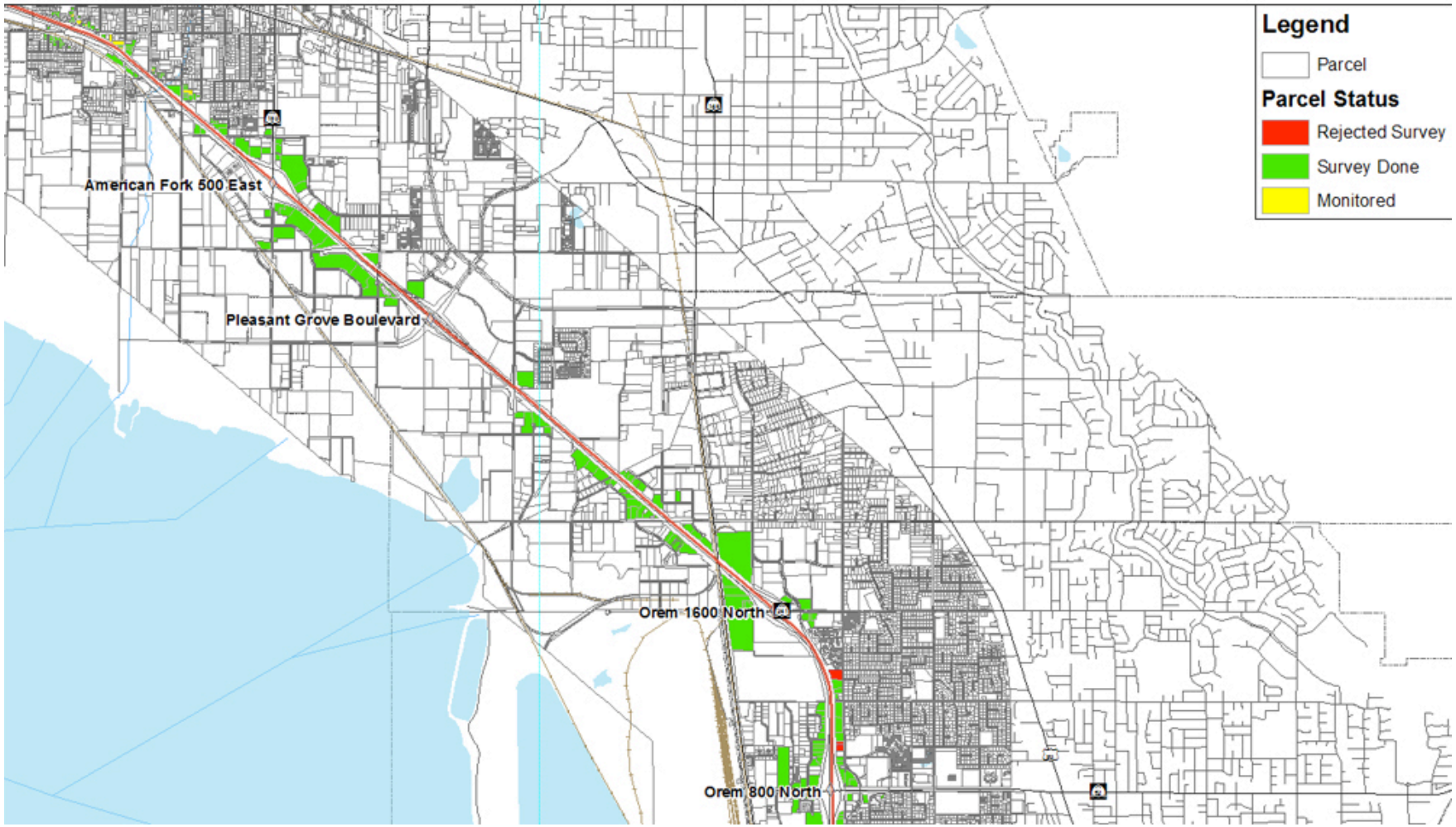
RIMS Software



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Roadway Design

Brian Atkinson| Roadway Design Manager
Laren Livingston | Roadway Design Manager

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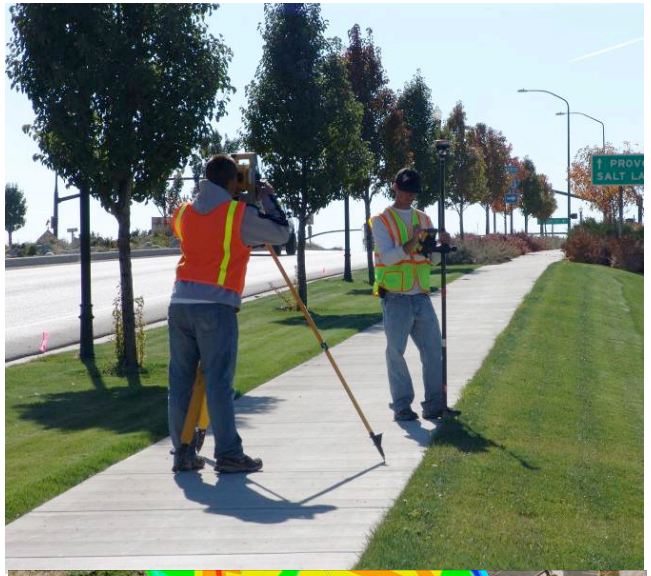
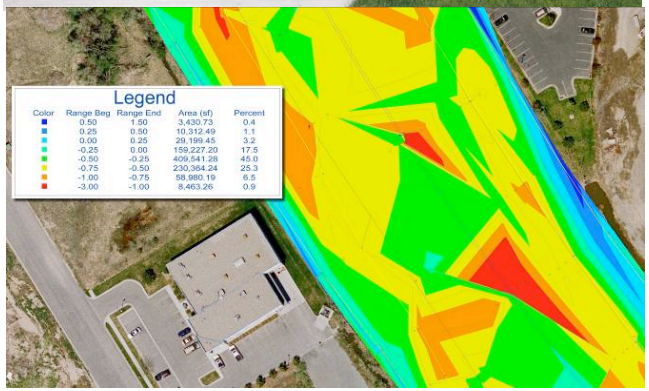
Survey and Mapping

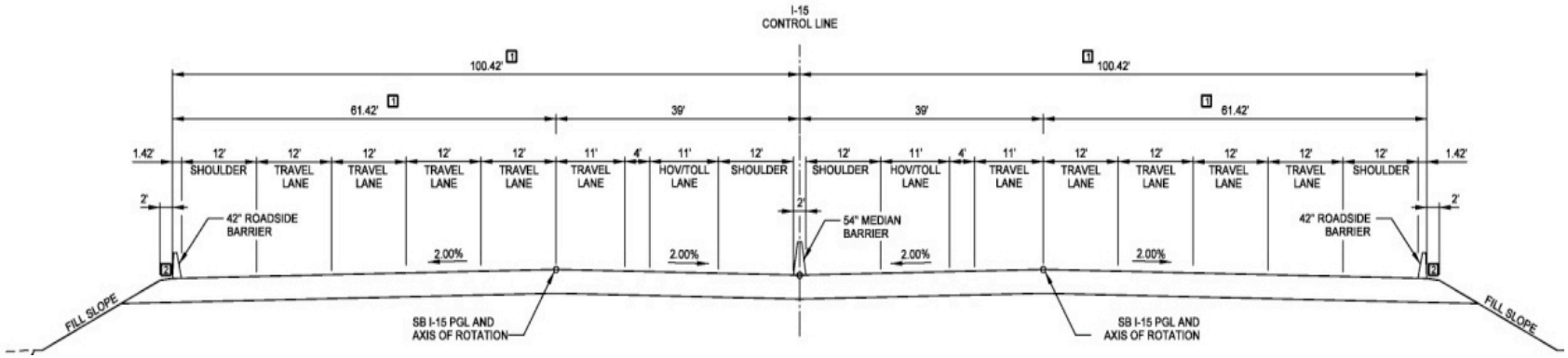
- Risks mitigated from FEIS
  - Aerial mapping was supplemented with field surveys
  - Inroads DTMs updated with field surveys
  - Updated DTMs meet mapping standards for 1 ft contours





I-15 Mainline Typical Section

- Risks Mitigated from FEIS
  - 11 ft Express Lanes and General Purpose (GP) Lanes
  - 4 ft buffer between Express Lanes and GP
  - American Fork Main to University Avenue approach to UIC
  - Minimum span lengths at city crossings
- Risks not yet addressed
  - Hydroplaning/pivot point



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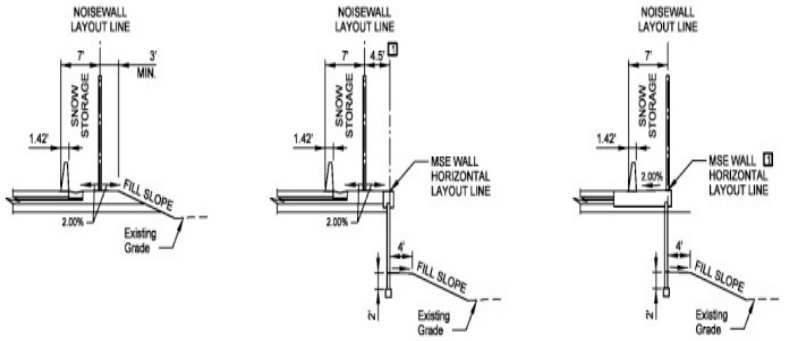
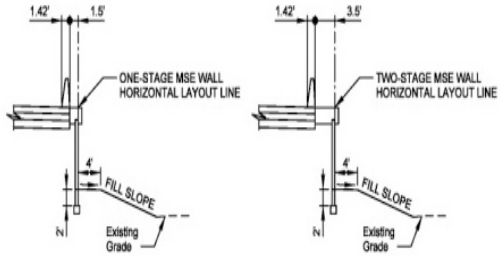
Maintenance Issues

- Risks identified from meeting with Region maintenance group
  - Snow storage and sign placement at noise walls
  - Provided 5 ft from back of barrier to noise wall
  - 10 ft wide access and maintenance area in front of walls
  - Settlement at MSE walls (single vs. two stage)



NOISEWALL TREATMENTS



MSE WALL TREATMENTS

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Design

- Known design exceptions
  - 11 ft Express Lanes and GP 1 approved
  - Inside shoulder for median appurtenances approved
  - Vertical clearances at under crossings pending
- Design and ROW approach
  - ROW acquired based on RFP design
  - Maintenance and access issues addressed
  - Design files provided
- Ramp metering

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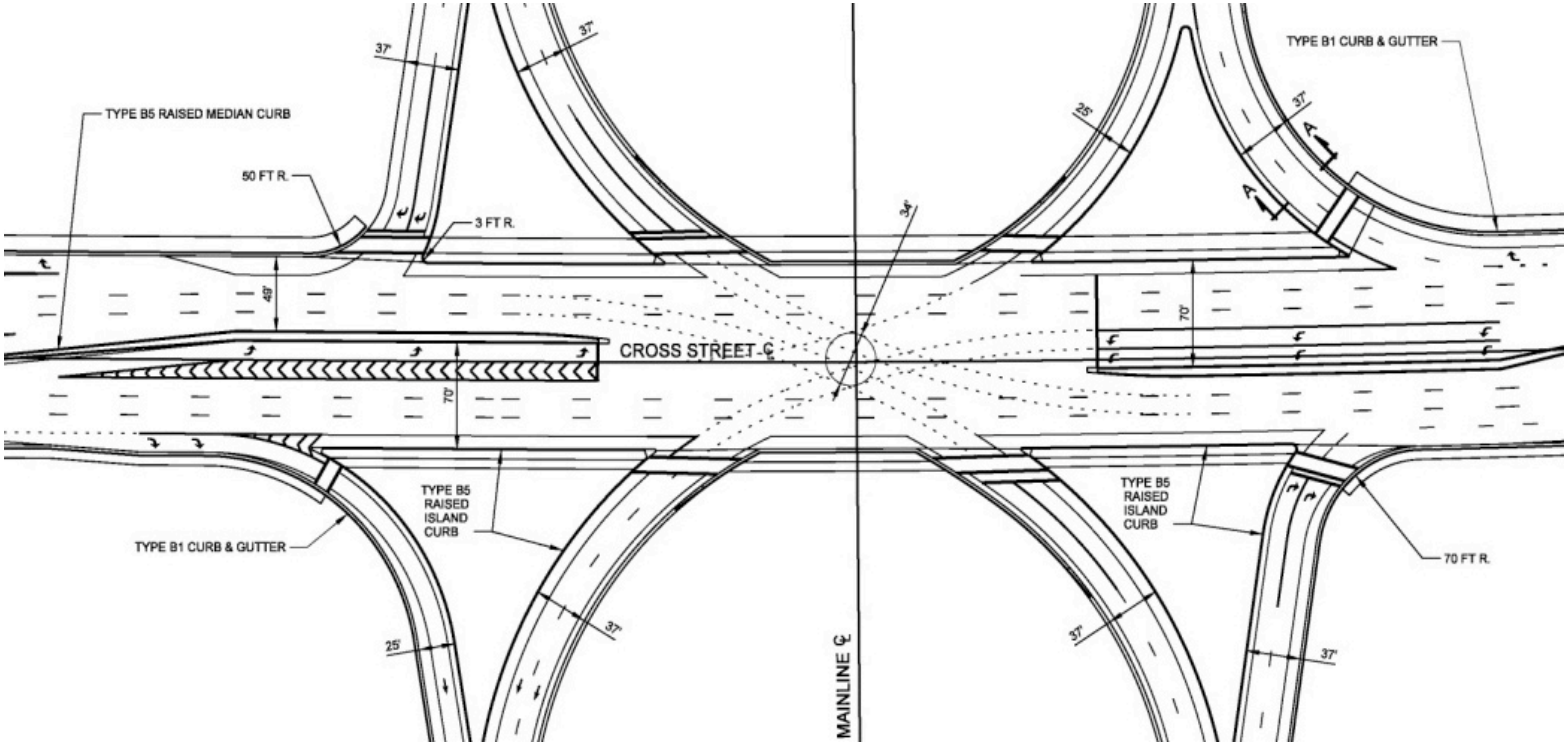
SPUI Requirements

- 10 ft separation between opposing movements
- 2:1 maximum ratio on compound curves
- Lanes accommodate WB-67 turning movements



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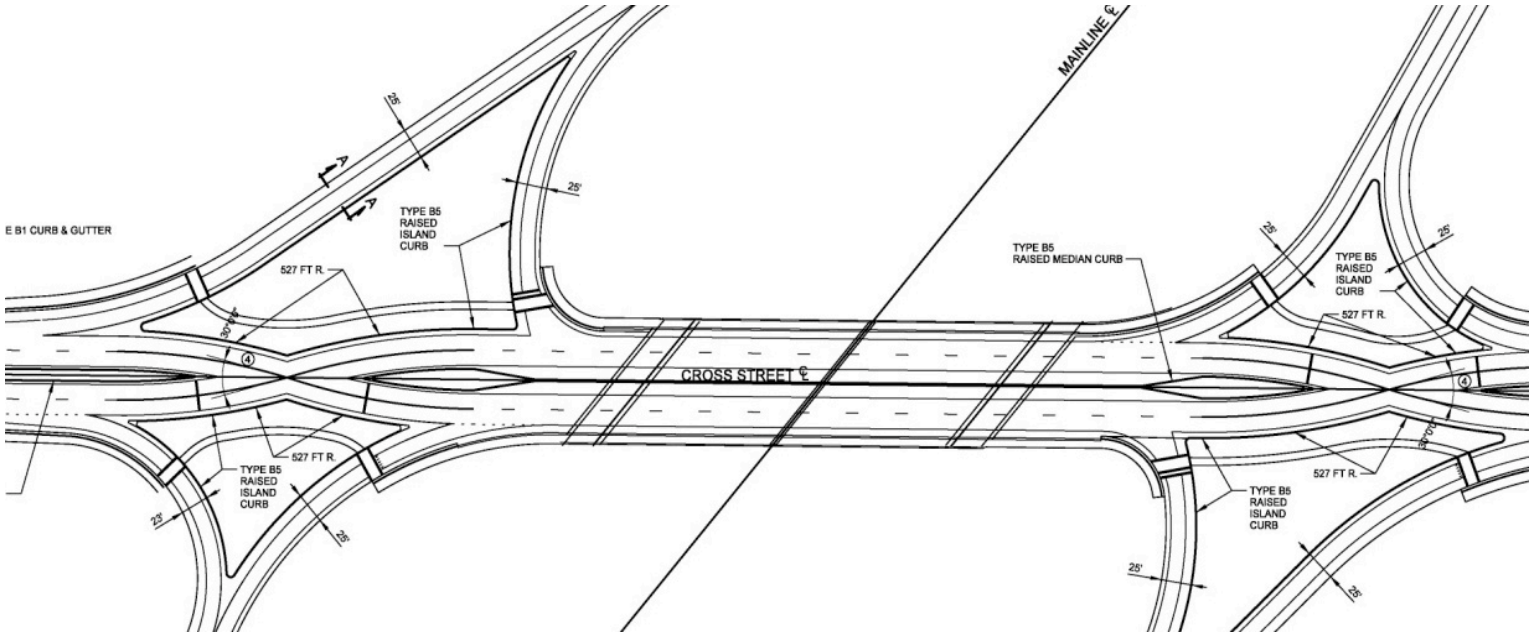
DDI Requirements

- 30°crossing angle
- 10 mph reduction in design speed
- 8 ft outside and 4 ft inside shoulder minimums
- Signalized intersections
- 600 ft spacing between signals
- Visual screening requirements



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Segment Description

- Segment 4 – American Fork Main to 800 North
- Segment 3 – Orem Center
- Segment 2 – University Parkway to Provo Center
- Segment 1 – Provo 600 South to UPRR crossing
- South of Segment 1 – U.S. 6 and Spanish Fork Main

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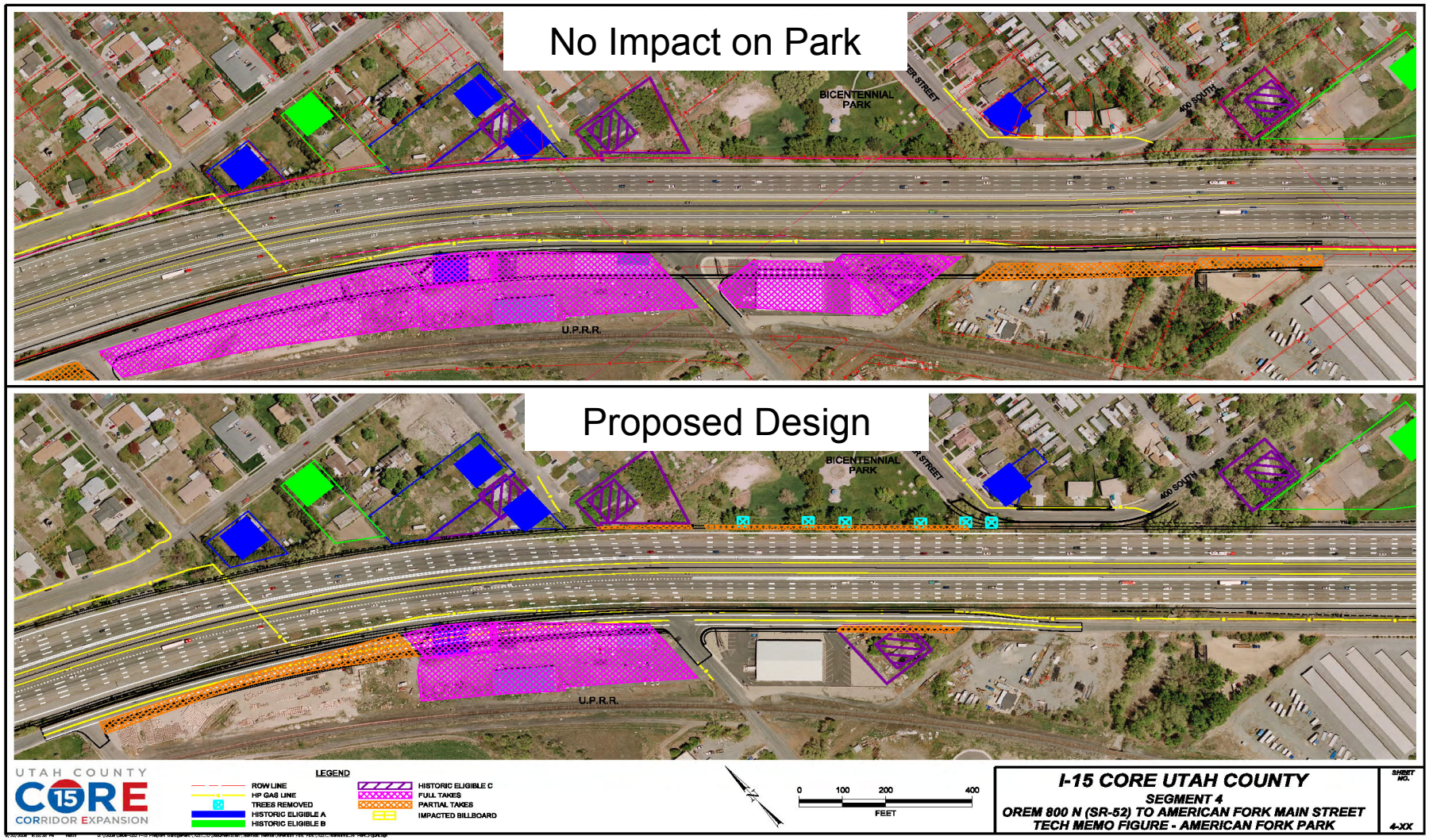
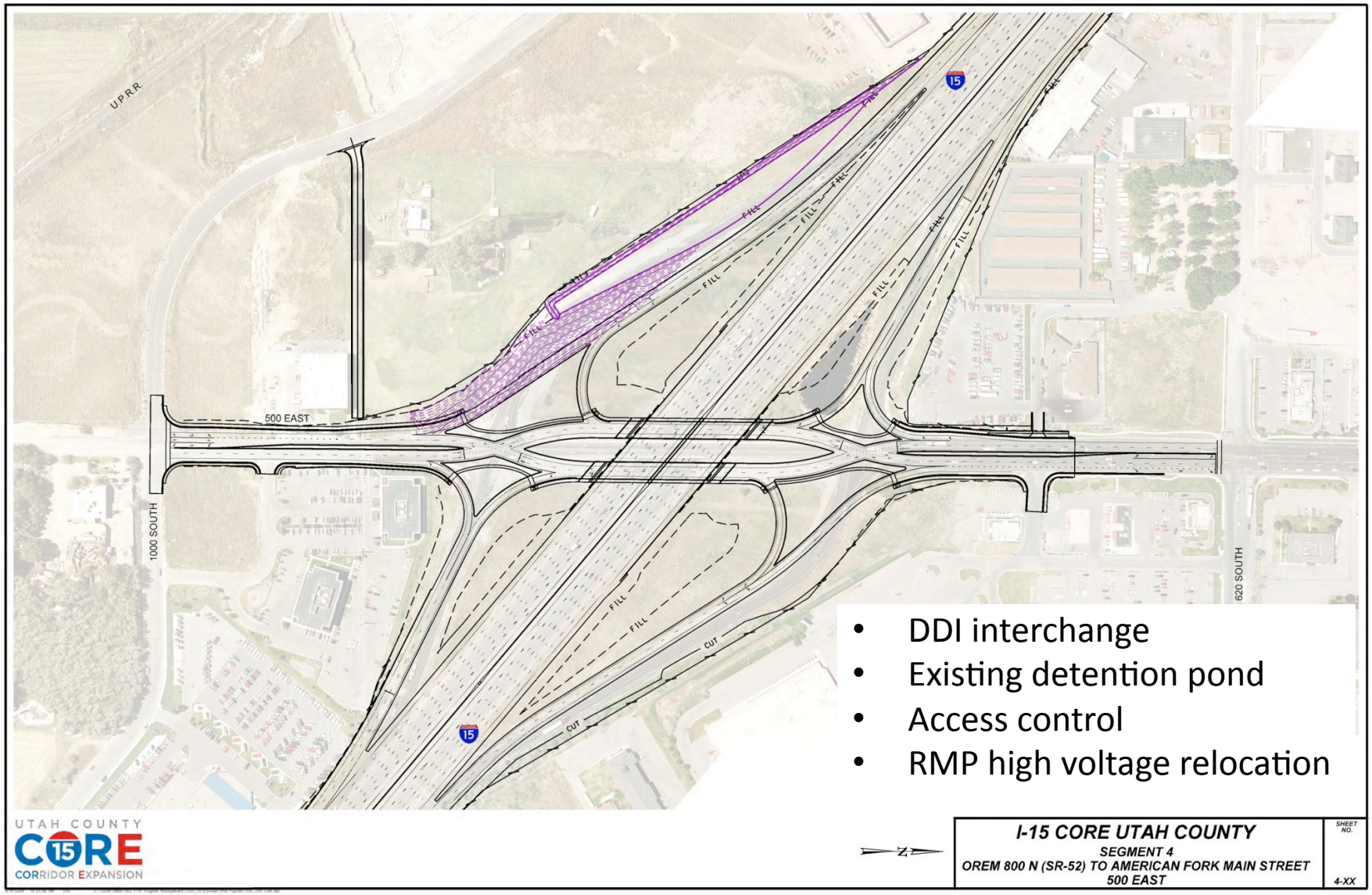
Segment 4 – Northern Termini

- Pioneer Crossing
- Smooth transition from 7 lanes to 4 existing lanes
- Eliminate queing onto mainline
- LOS D at interchange

Segment 4 – American Fork Bicentennial Park

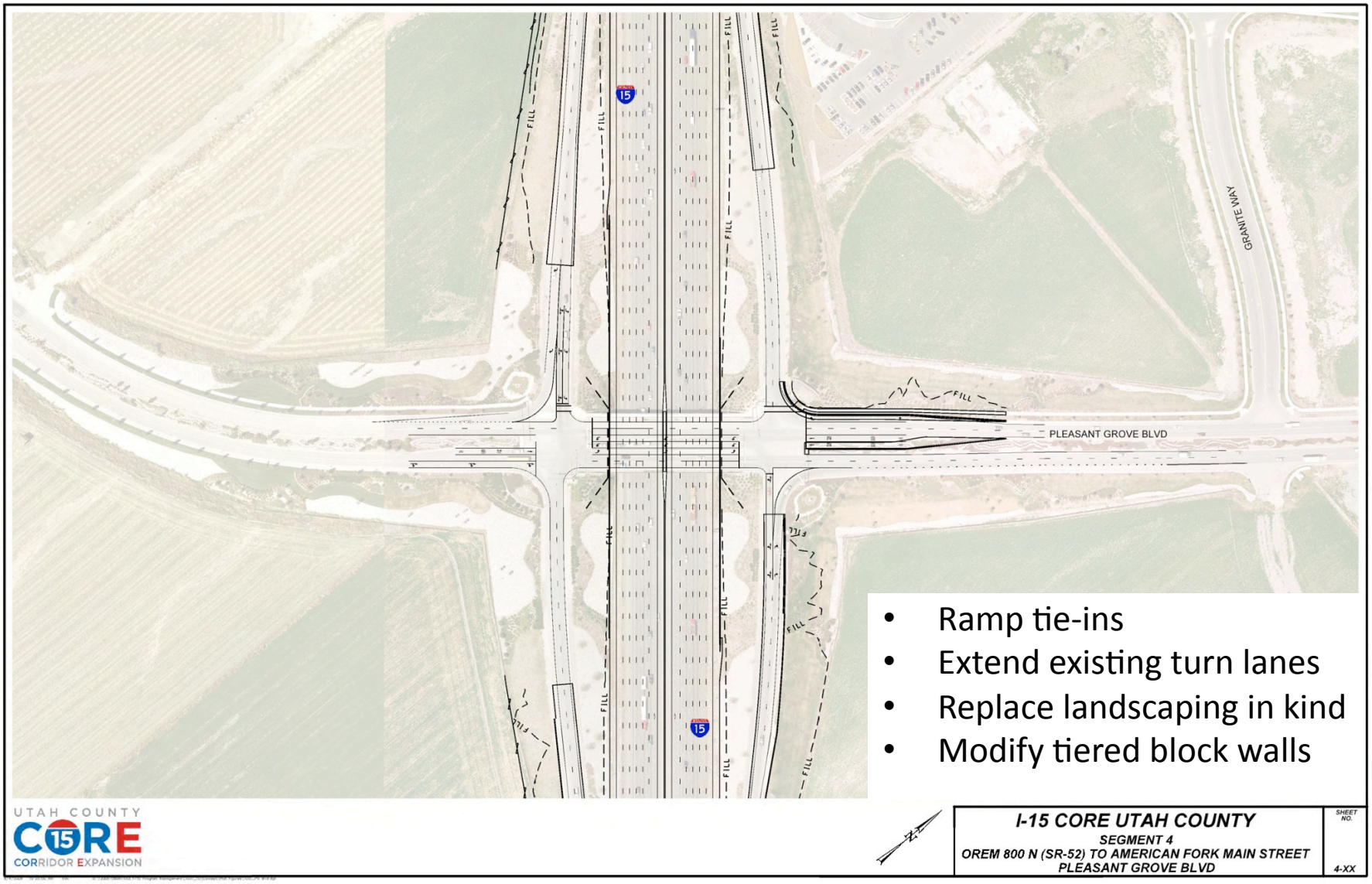


Segment 4 – 500 East



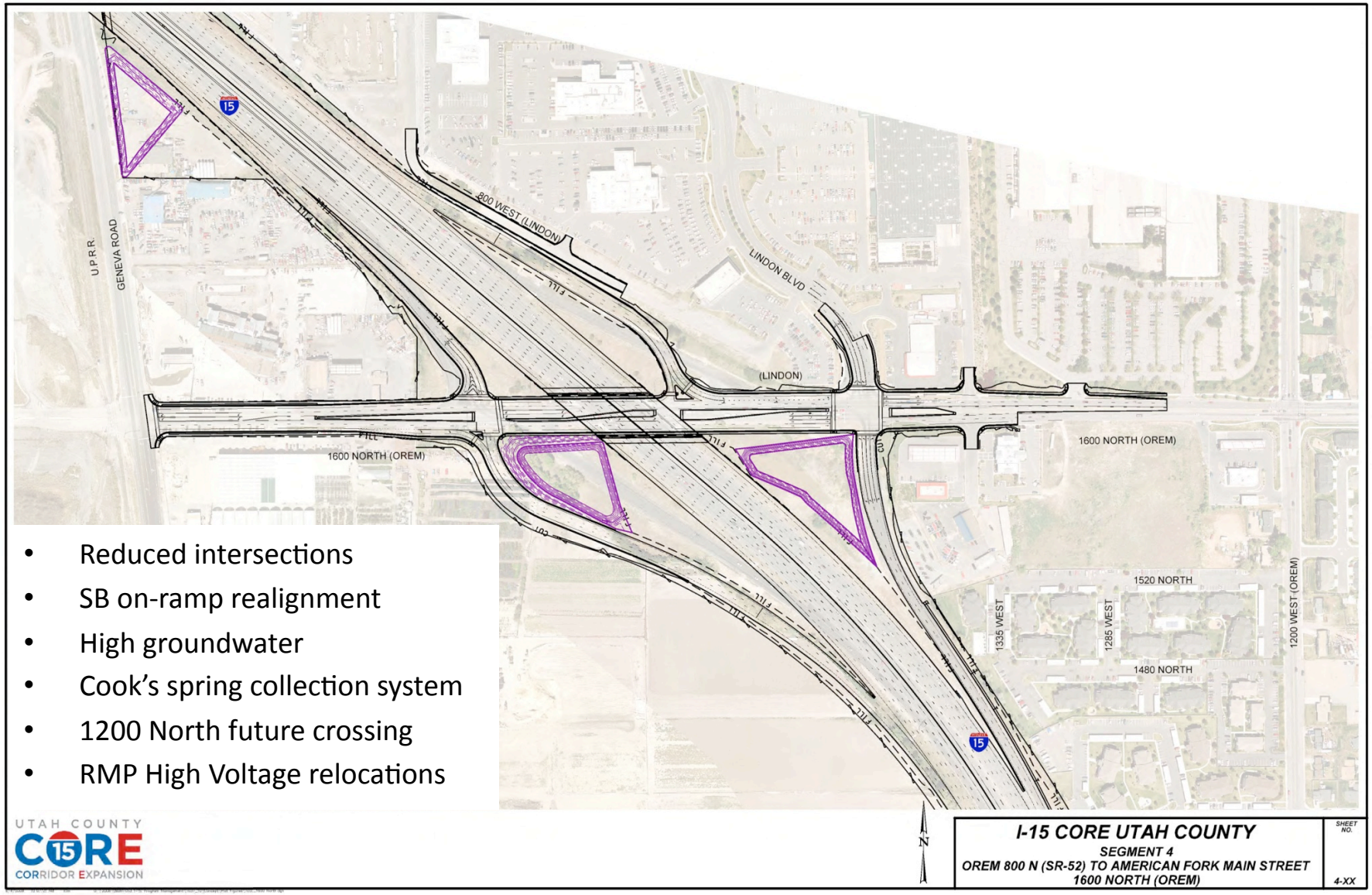
- DDI interchange
- Existing detention pond
- Access control
- RMP high voltage relocation

Segment 4 – Pleasant Grove Boulevard



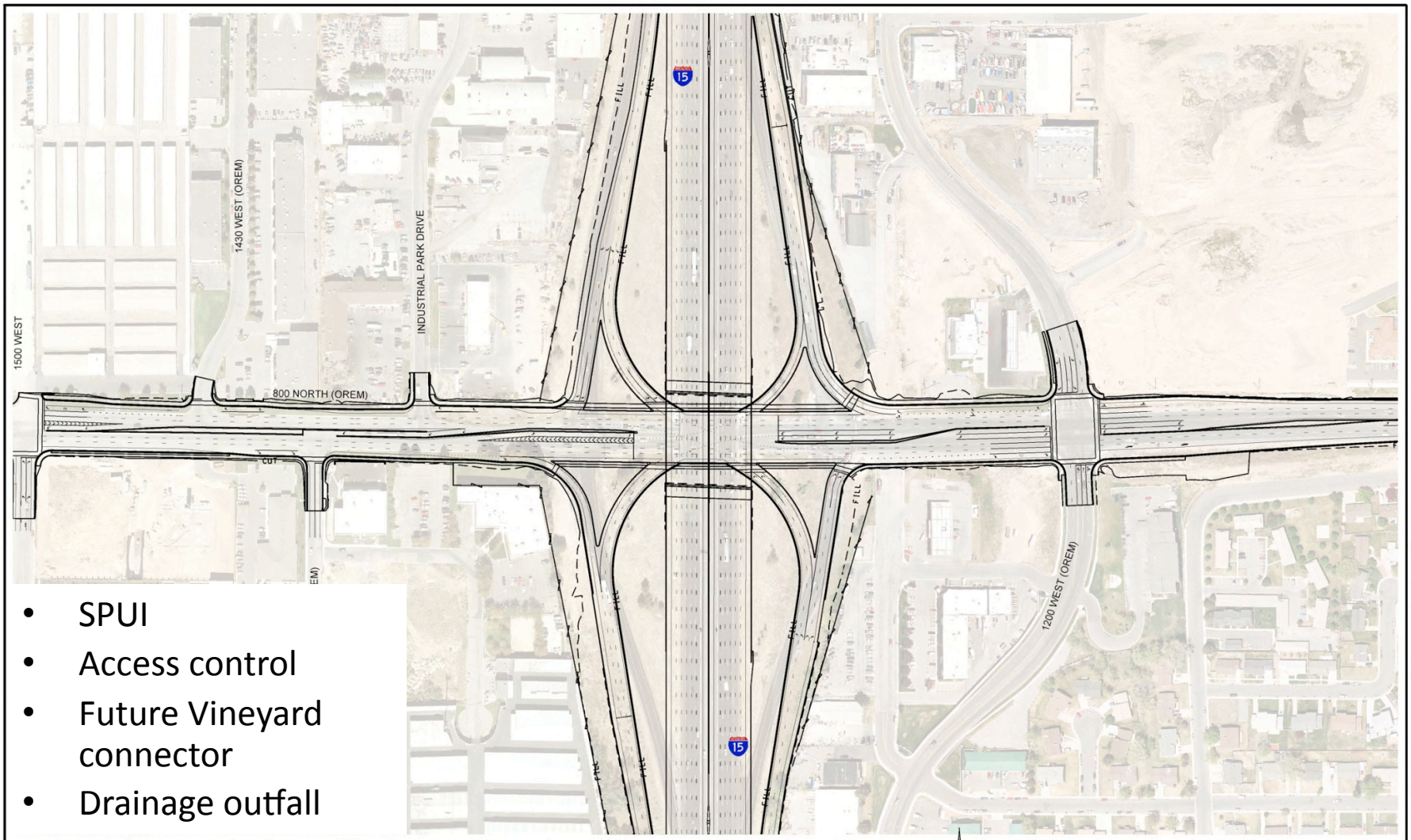
- Ramp tie-ins
- Extend existing turn lanes
- Replace landscaping in kind
- Modify tiered block walls

Segment 4 – 1600 North



- Reduced intersections
- SB on-ramp realignment
- High groundwater
- Cook's spring collection system
- 1200 North future crossing
- RMP High Voltage relocations

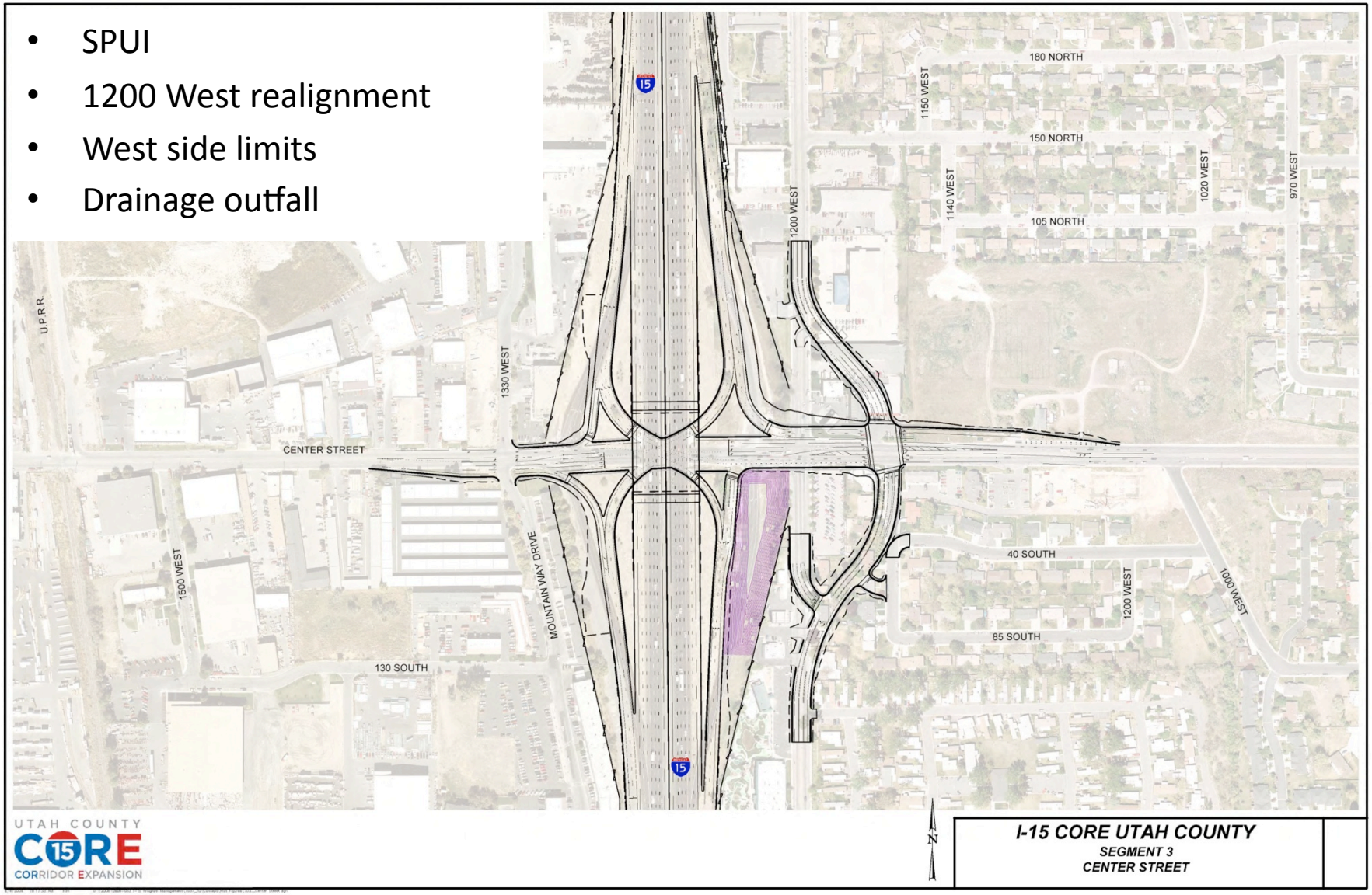
Segment 4 – 800 North



- SPUI
- Access control
- Future Vineyard connector
- Drainage outfall

Segment 3 – Orem Center

- SPUI
- 1200 West realignment
- West side limits
- Drainage outfall



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Segment 2 – University Parkway to Provo Center

- University Parkway
- S-Curves at UPRR and UTA crossings
  - Provo 820 North
- Provo Center

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Segment 2 – University Parkway

- Maintain existing SPUI
  - Add triple southbound to eastbound and westbound to southbound ramps
- Capacity of Sandhill Road intersection
  - FEIS design: tunnel and flyover
  - Conceptual design: Full grade separation at Sandhill Road

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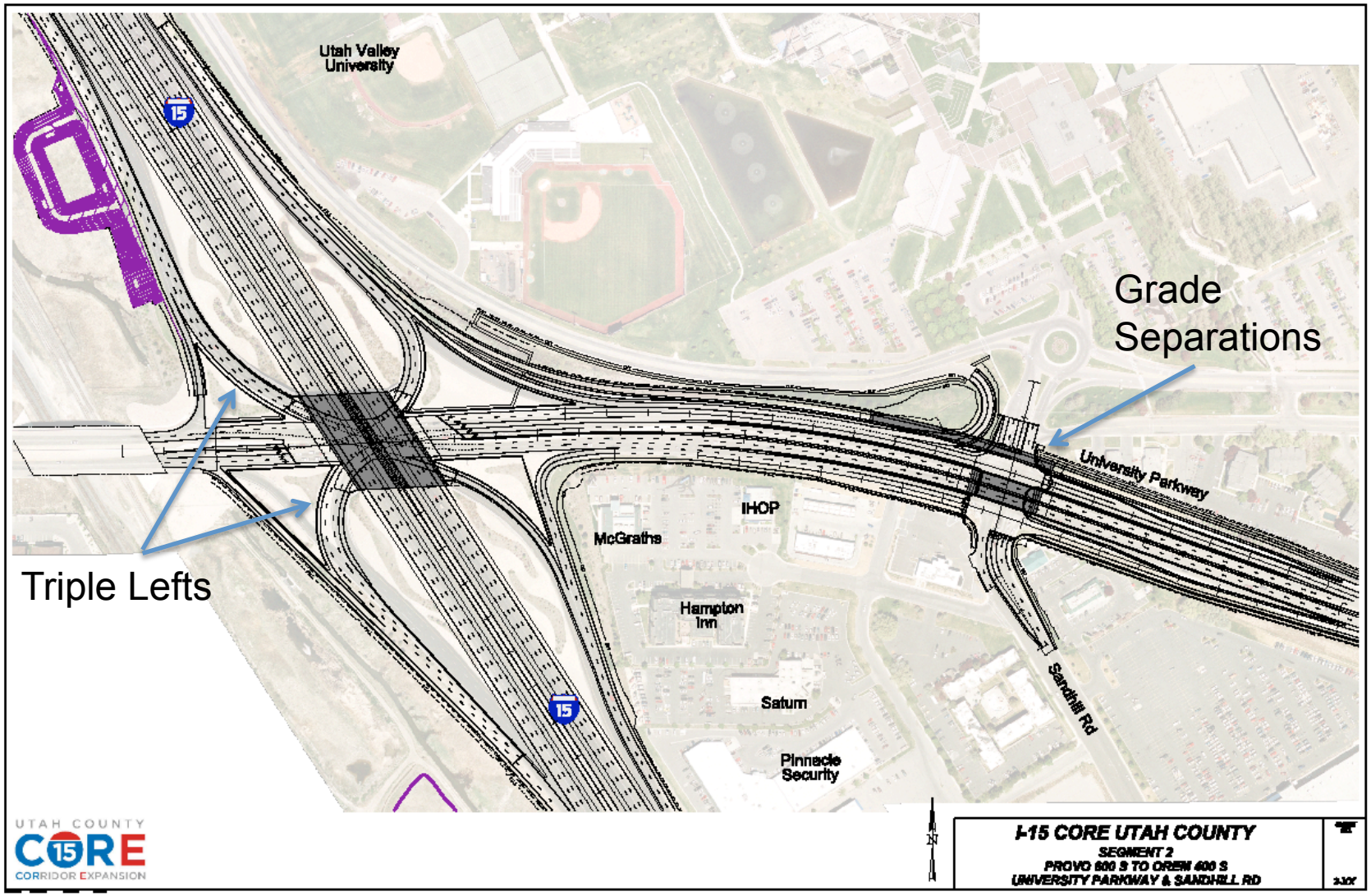
Segment 2 – University Parkway



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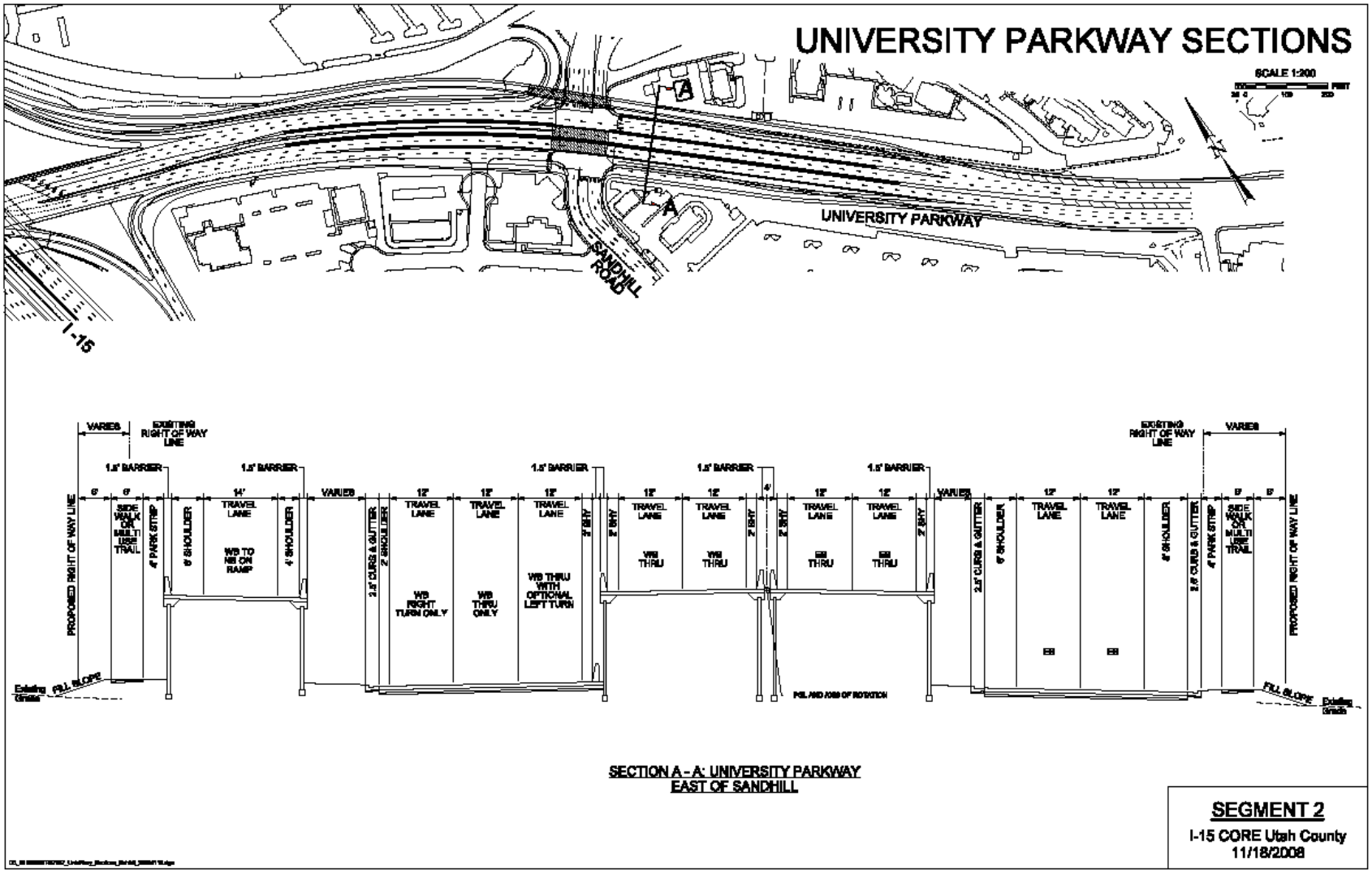
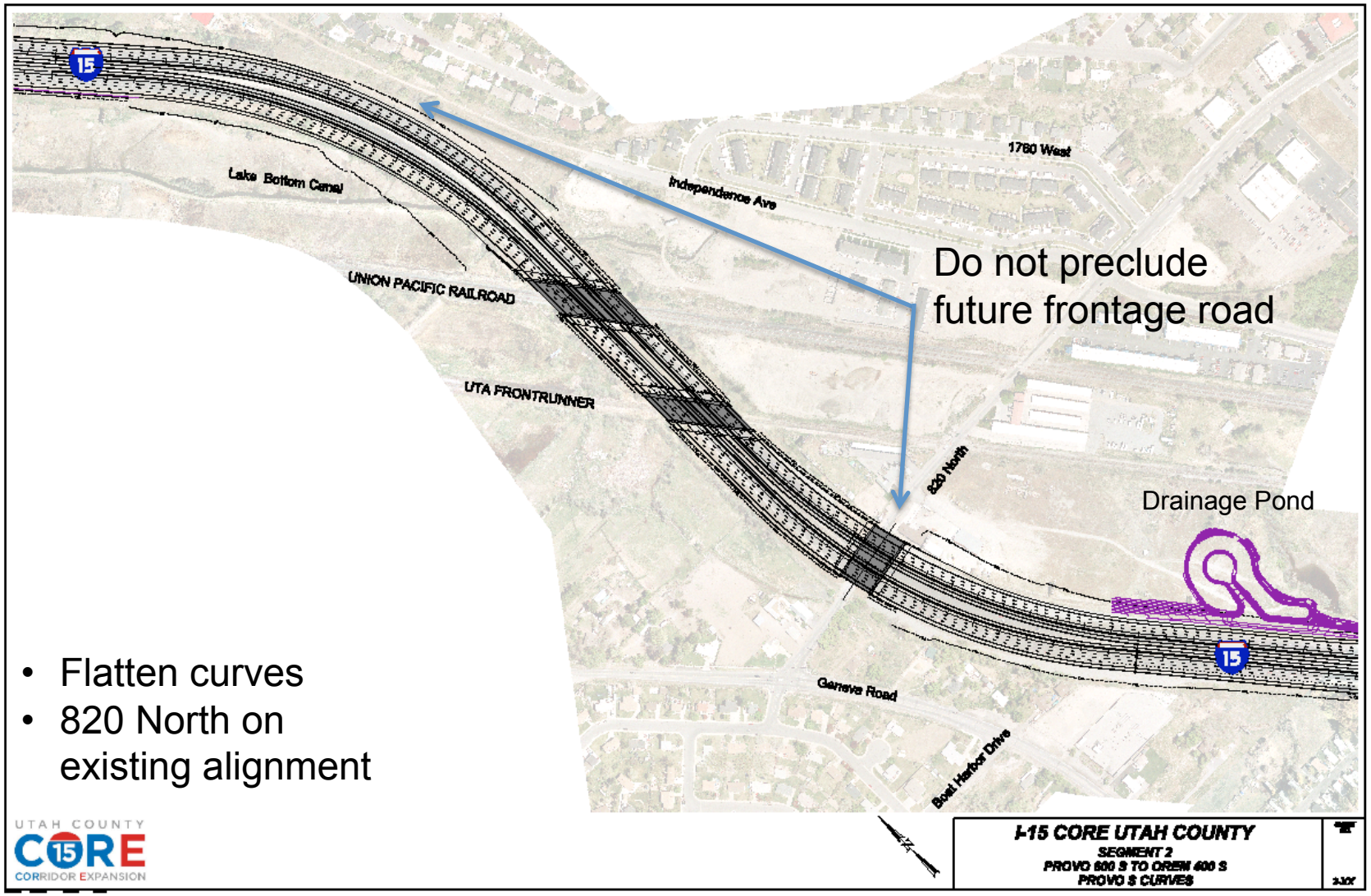
Segment 2 – University Parkway



Segment 2 – S-Curves at Railroad Crossings



- Flatten curves
- 820 North on existing alignment

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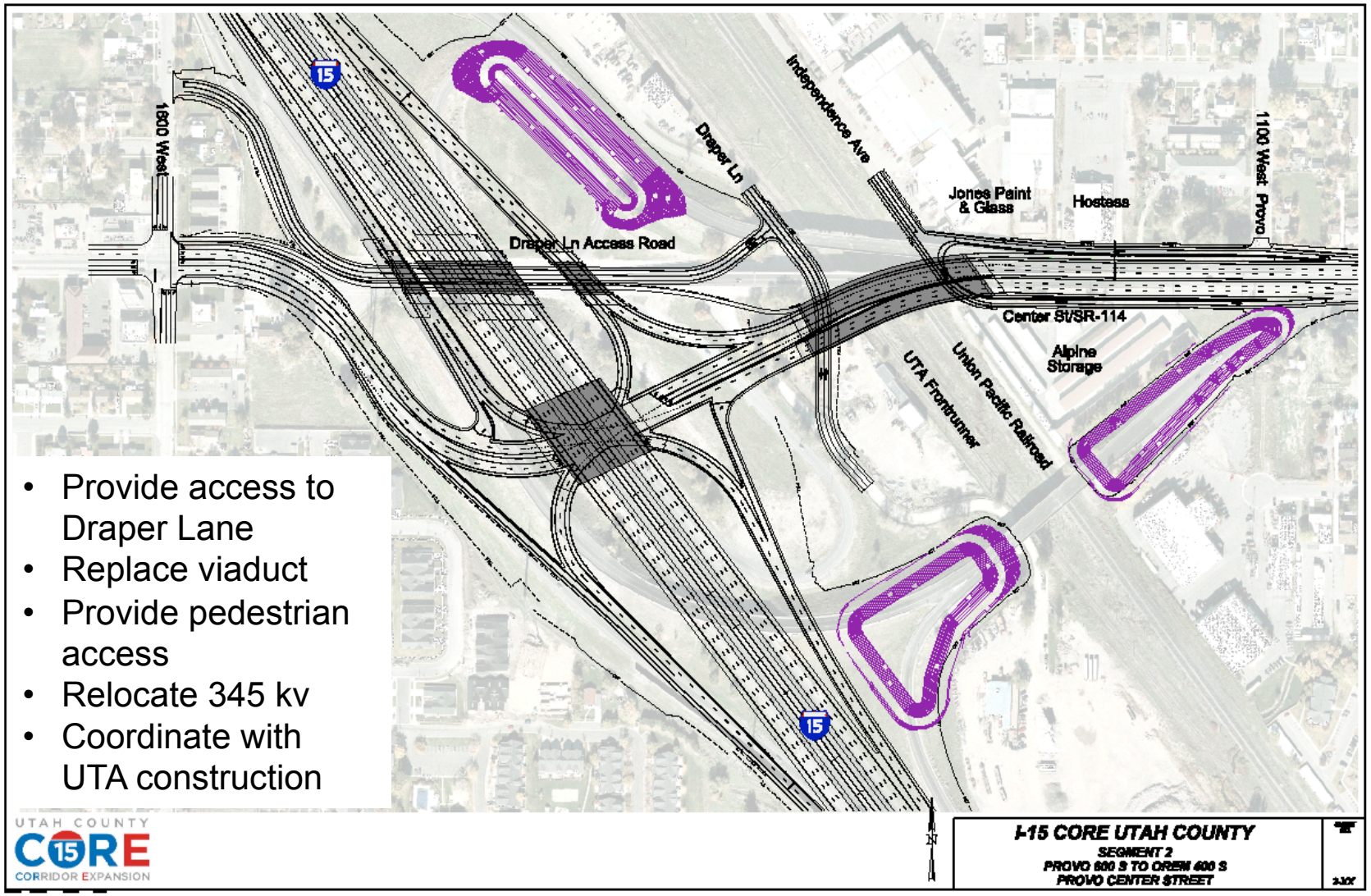
Segment 2 – Provo Center



- Provide access to Draper Lane
- Replace viaduct
- Provide pedestrian access
- Relocate 345 kv
- Coordinate with UTA construction

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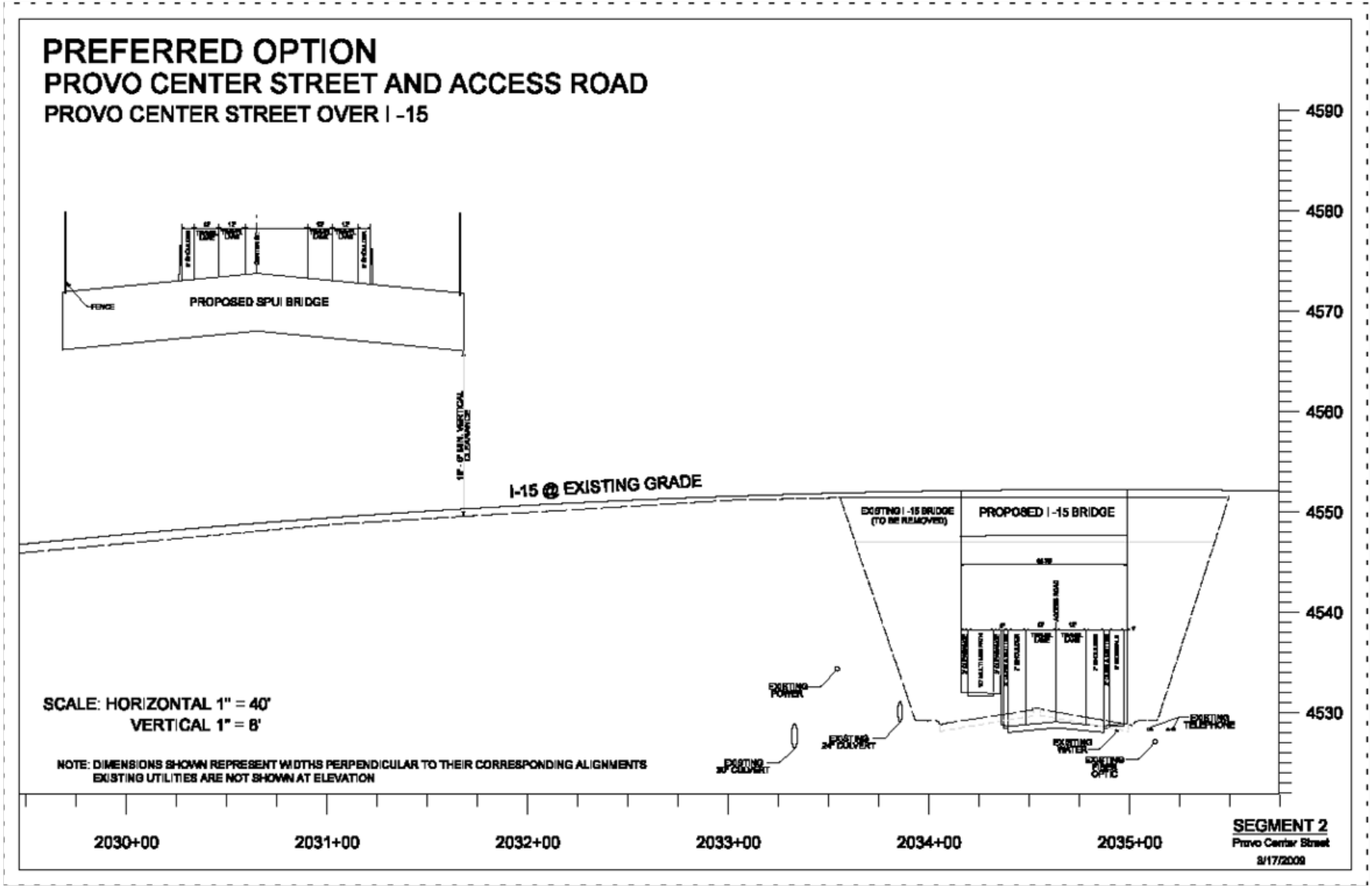
Segment 2 – Provo Center



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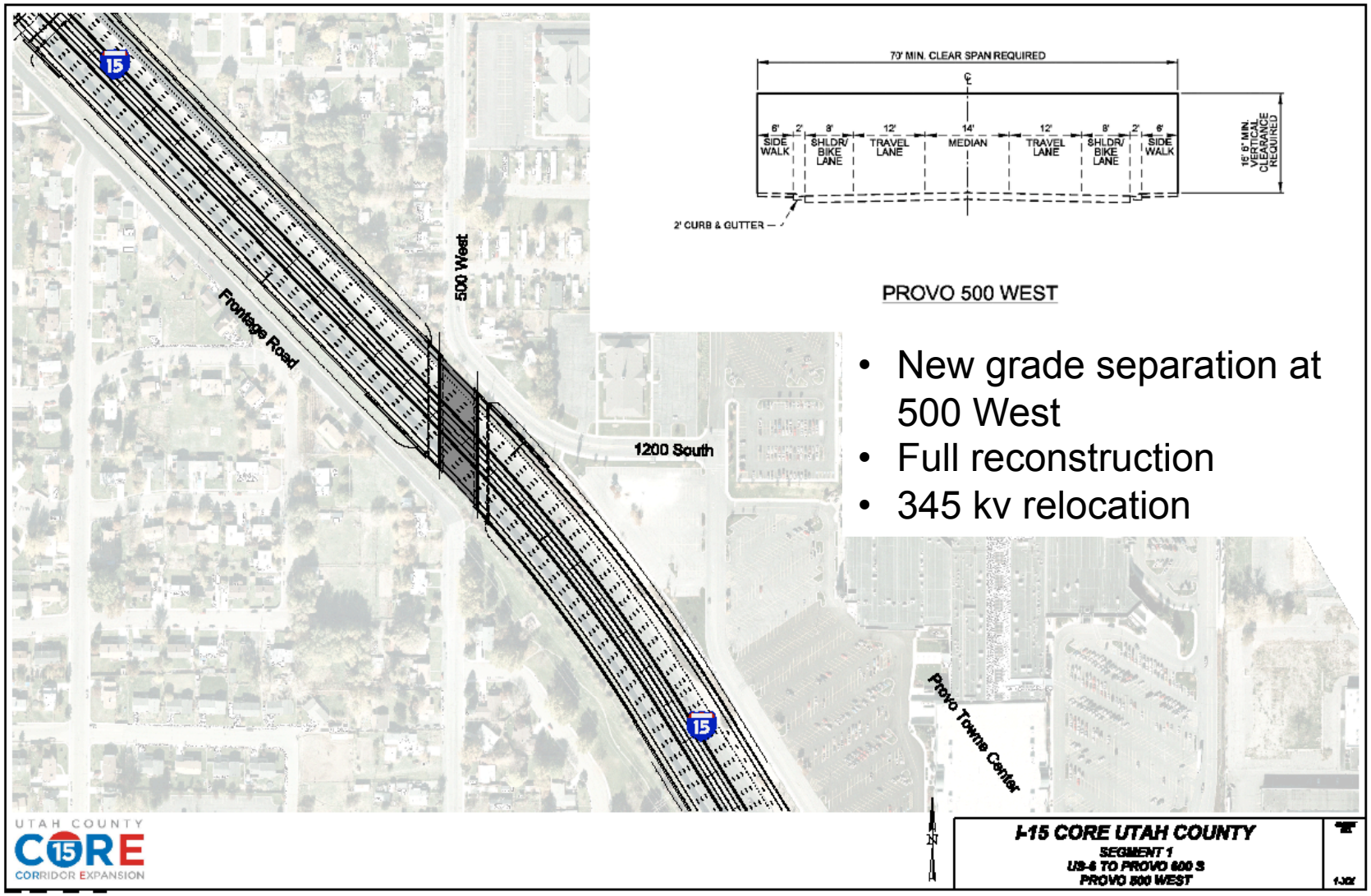
Segment 1 – Provo 600 South to UPRR Crossing

- Provo 500 West
- University Avenue
- Widening south of University Avenue
- Southern Terminus
  - Lane drop at interchange vs. inside lane taper

Segment 1 – 500 West



- New grade separation at 500 West
- Full reconstruction
- 345 kv relocation

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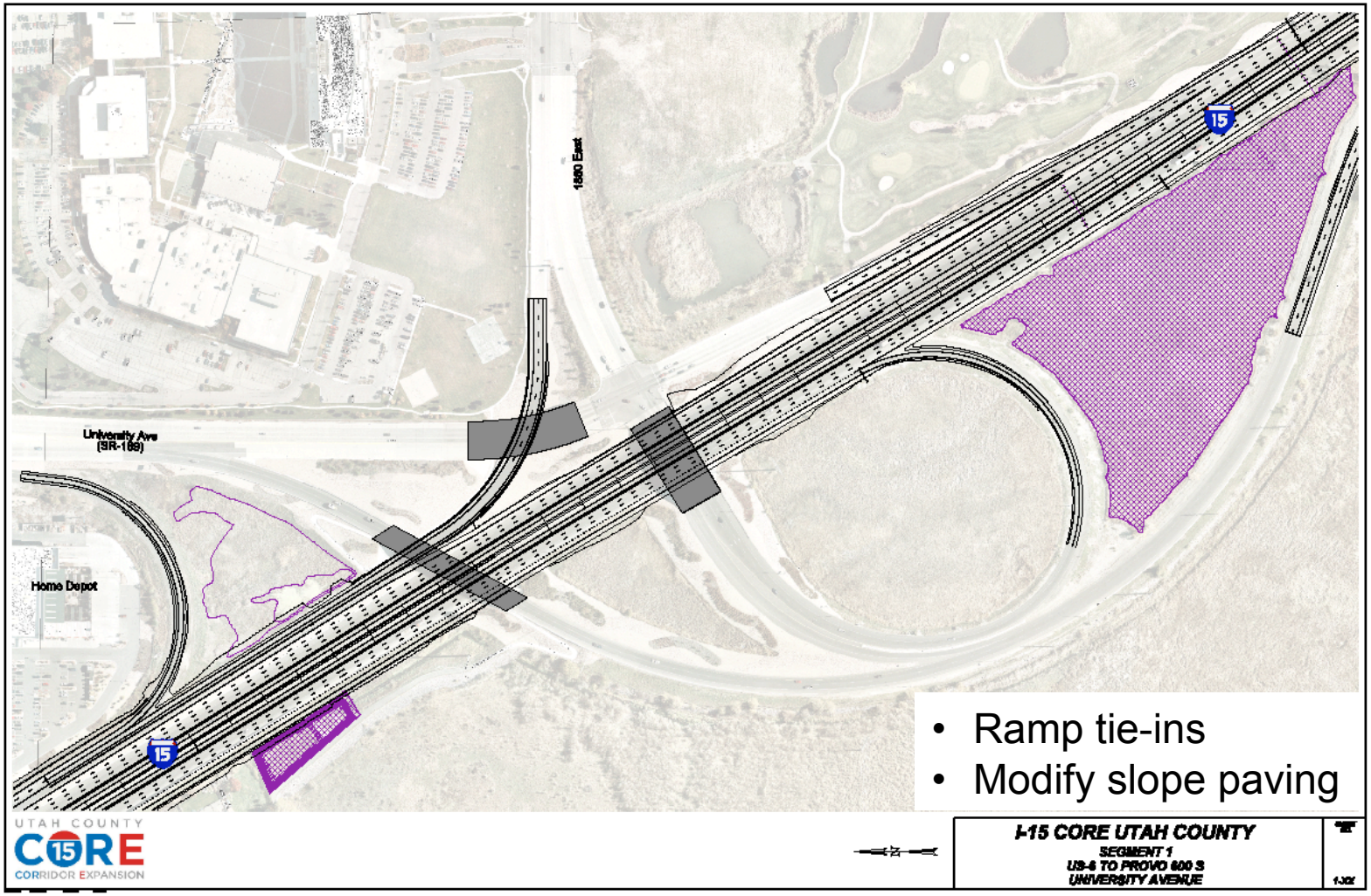
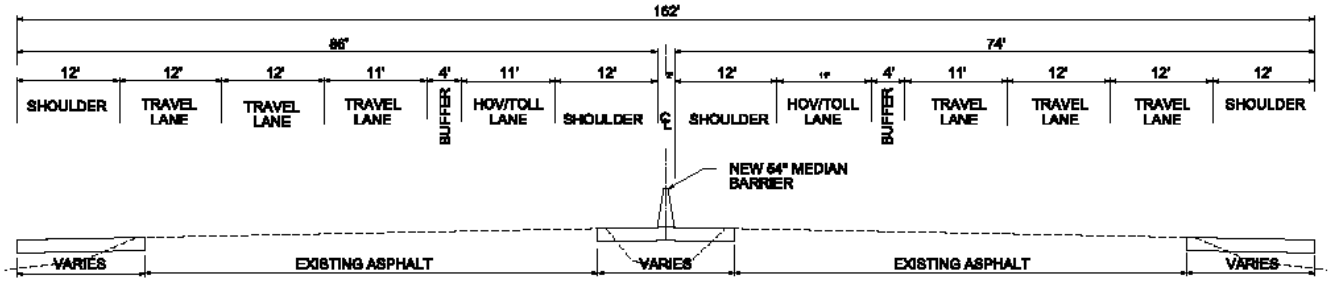
Segment 1 – University Avenue



Segment 1 – South Mainline Typical



TYPICAL WIDENING SECTION

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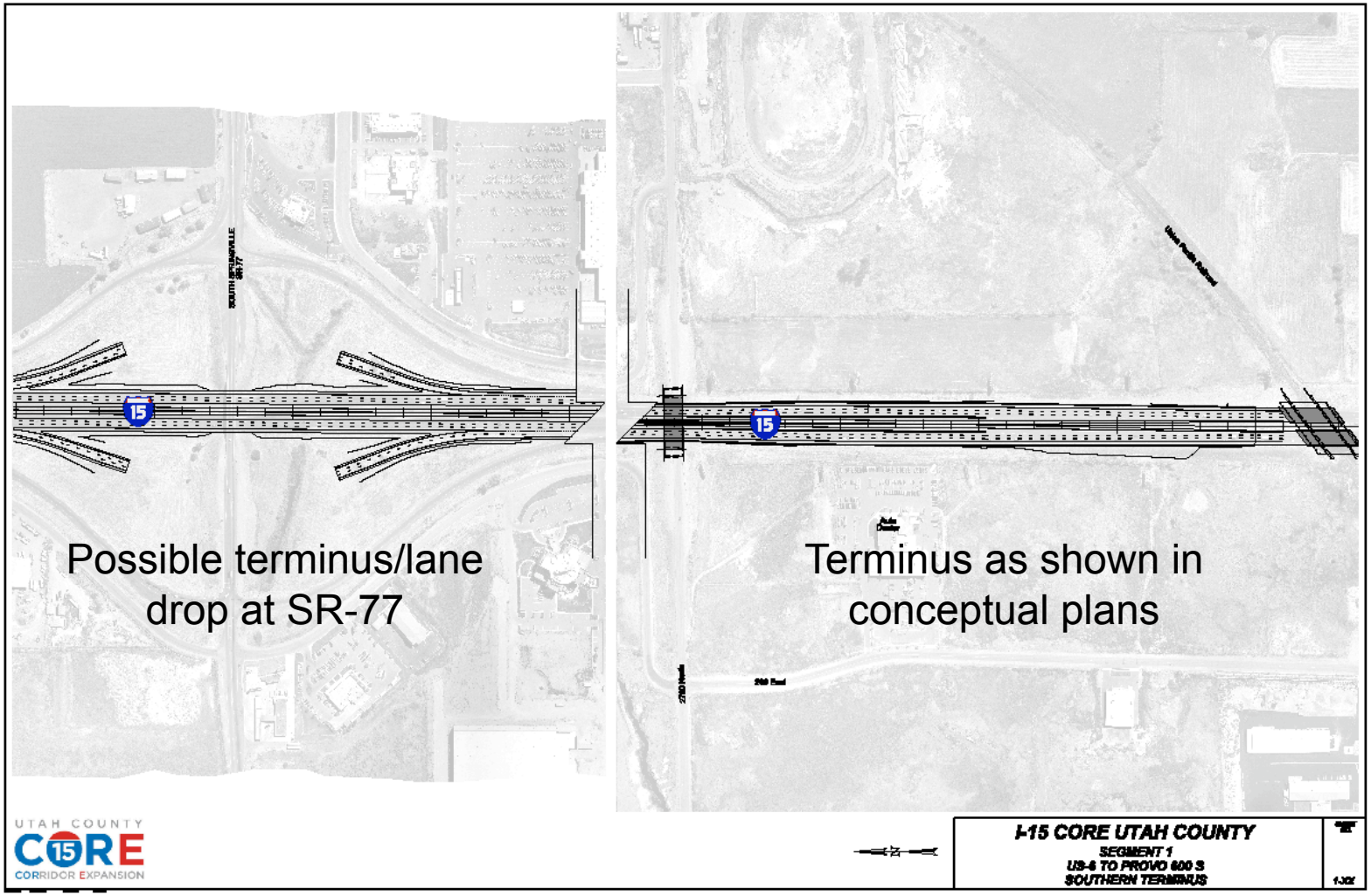
I-15 CORE UTAH COUNTY SEGMENT 1 US-6 TO PROVO 500 S TYPICAL WIDENING SECTION	

Segment 1 – Southern Terminus



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South of Segment 1 – U.S. 6 and Spanish Fork Main Street

- Additional data and conceptual design information available

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Signing

Laren Livingston| Roadway Design Manager

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Signing

- Information to be provided by UDOT
  - Destination names
  - Supplemental signs
  - Standard is 2003 MUTCD
  - Select 2009 MUTCD requirements
  - Sign plans shall be submitted for approval

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Traffic and MOT

Luis Porrello | Traffic and MOT Manager
Rob Clayton | Traffic and MOT Manager

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Traffic Analysis

- The role of traffic analysis is to understand:
  - Current and future traffic demand through the corridor
  - The impact of I-15 construction and proposed improvements on regional mobility
  - The interactions between interchanges and mainline
- Analysis tools
  - Gain understanding
  - Evaluate ideas

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Interchange Concepts

- Emphasis on interaction with:
  - I-15 Mainline
  - Cross streets and the local roadway network
  - Adjacent interchanges
- If a proposed interchange type differs from the approved Access Justification Report (AJR), a revised AJR is needed
  - Not a big deal

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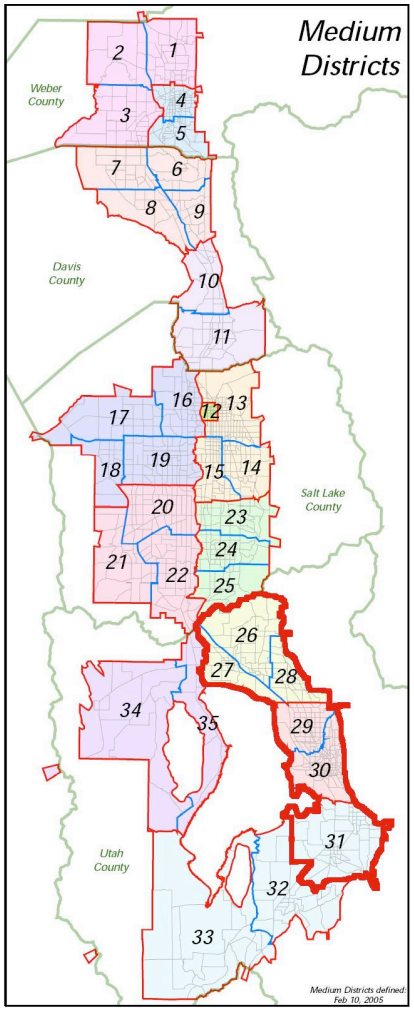
Traffic Analysis Tools

- Platform and model summary

Traffic Analysis Type	Required Platform	Use of Models Provided
Travel Demand Forecasting	CUBE	Required – Part 6 Limited modifications
Macro-scale Simulation	Quadstone Paramics	Required – Part 6 Limited modifications
Microsimulation	VISSIM	Not required – Informational only
Traffic Signal Optimization	Synchro	Not required – Informational only
Highway Capacity Analysis	HCS	Not required – Informational only

Travel Demand Forecasting

- Platform: CUBE 5, WFRC/MAG model v 6.0
- Why did we use it?
  - Recognized by MAG
- How is it used?
  - Develop I-15 CORE-specific TDM
  - Forecast corridor volumes
  - Develop intersection turning movements
  - Develop subarea trip tables for Paramics
  - Screen and evaluate MOT concepts
- Additional notes
  - MAG concurrence with model provided
  - Emphasis on Medium Districts 26-31 for assessment



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Macro-scale Simulation

- Platform: Quadstone Paramics v6.5.3
- Why did we use it?
  - Closer look at corridor and surrounding network in the peak hours
  - Incorporates the effects of signal operations
- How is it used?
  - Examination of MOT strategies to determine impacts on mainline and alternative routes
- Additional notes
  - Efficient evaluation of alternatives for regional traffic operations

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Microsimulation

- Platform: VISSIM v5.10-07
- Why did we use it?
  - Accepted by UDOT; flexible application
- How is it used?
  - Evaluation of interchange types at key locations
  - Ramp metering analysis
  - Northern and southern terminus analysis
  - Ramp junction and ramp terminal analysis
- Additional notes
  - Several models provided with RFP for information only
  - VISSIM required for analysis of interchanges

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Traffic Signal Optimization

- Platform: Synchro v7
- Why did we use it?
  - Accepted by UDOT; ease of use
- How is it used?
  - Design and interim year signal optimization and coordination
  - Intersection analysis
  - Initial queuing analysis
- Additional notes
  - County-wide Synchro file provided as information

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Highway Capacity Analysis

- Platform: HCS+ v5.21
- Why did we use it?
  - Wide acceptance; ease of use
- How is it used?
  - Analysis of mainline, ramp junctions, auxiliary lanes, and weaving sections
- Additional notes
  - HCS files provided with RFP for AJR study area

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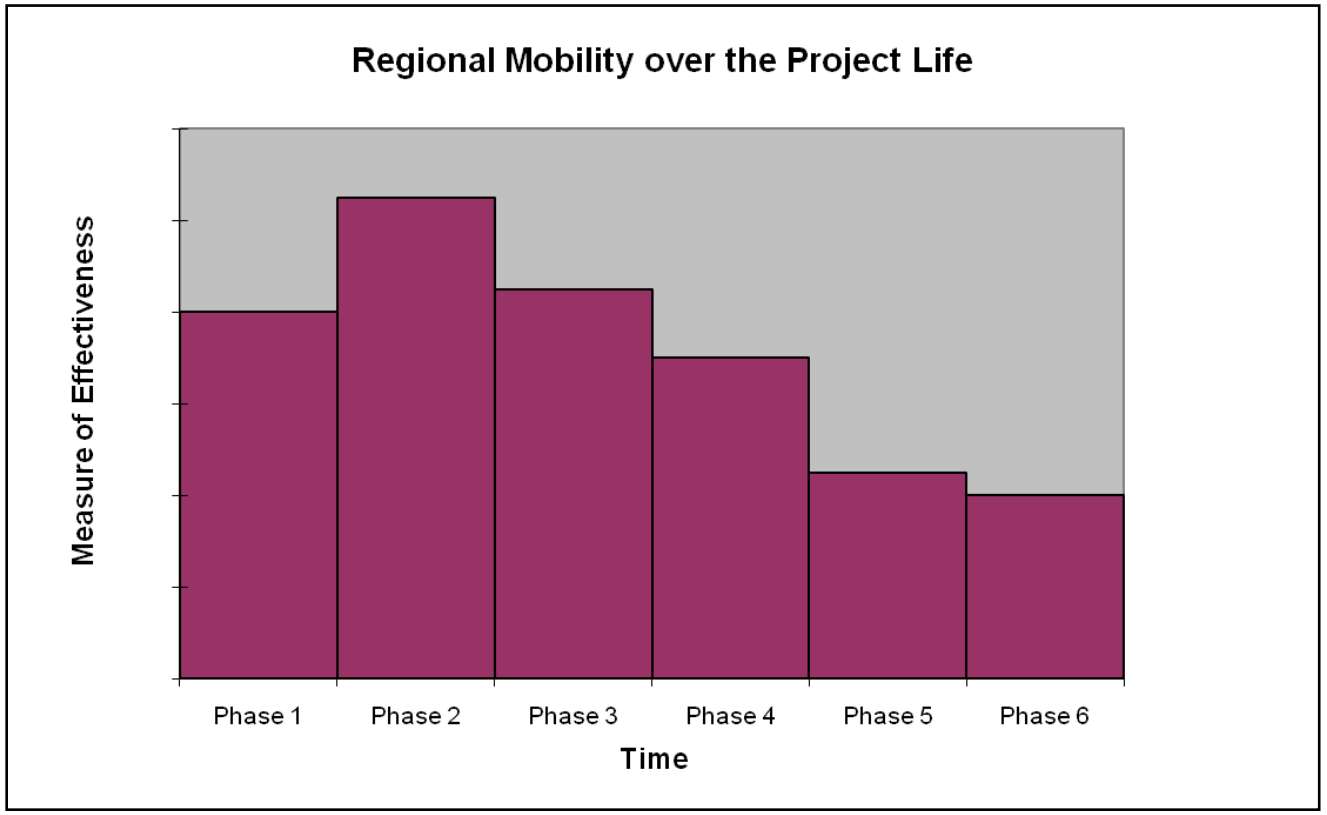
Traffic Management Plan

- Implementation of traffic management strategies directly impacts regional mobility
- Measurement of regional mobility will include the following measures from Paramics:
  - Delay
  - Vehicle miles traveled
  - Vehicle hours traveled
  - Travel times / average speed
- How to apply these and other proposed measures will be the subject of discussion with teams

Traffic Management Plan cont.

- Example: Quantitative measure of Regional Mobility by phase and over the Project Life



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Traffic Management Plan cont.

- Limitations for:
  - Mainline lane closures by time of day, day of week
  - Mainline lane closures for holidays and special events
  - Closure of consecutive ramps and combinations of cross streets
- Management of traffic signal operations
  - DB operators functioning at UDOT TOC
- Coordination with I-15 CORE Public Information Team – significant part of TMP

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Environmental

Derek Hamilton| Environmental Manager

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RFP Development Approach

- Project commitments
  - Permits, authorizations, assessments, and documents
- Identify Responsible Party and implementation periods
- Provide “resource” exhibits
- Clarify Department expectations
- Identify compliance measures
  - Qualifications
  - Training
  - Reporting

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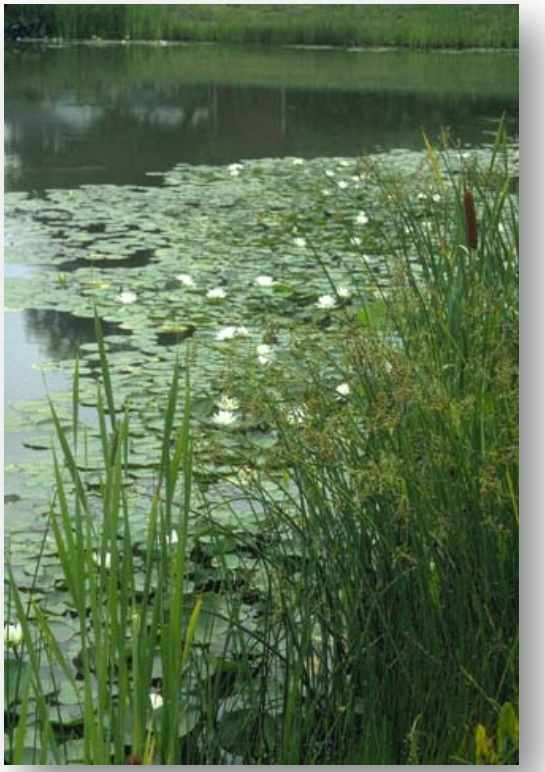
Project Area Resources

- Natural Environment
  - Wetlands
  - Plant and Wildlife
    - June sucker
    - Ute-ladies'-tresses
- Human Environment
  - Social (relocations, noise, aesthetics, construction)
  - Cultural
    - Historic Homes
    - Parks

Wetlands

- U.S. Army Corps of Engineers 404 Permit
  - Authorizes 39.64 acres for permanent features associated with the EIS design between Main Street in Lehi and U.S. 6 in Spanish Fork
  - Wetland delineated boundary and permitted wetlands are identified in the Environmental Plan Sheets
- Conceptual Design
  - Modification to 404 permit shall be obtained based on final design and change in impacts
  - Hobble Creek fish passage condition
- Schedule of wetland impacts
  - One year notice (wetlands south of bank service area)



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Threatened and Endangered Species

- June sucker (Chasmistes liorus)
  - Provo River, Spanish Fork River, Hobble Creek
  - Construction activities shall occur during the non-spawning period
  - Non-spawning period: August 1 to March 31
  - Biological Assessment construction conditions

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Threatened and Endangered Species

- Ute ladies'-tresses (Spiranthes diluvialis)
  - Annual surveys shall be conducted in suitable habitat as requested by USFWS
  - Surveys shall be conducted in July or August
  - Survey to be conducted by the Department in 2009 (results to be disclosed)

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Migratory Birds

- Surveys shall be conducted annually in areas that require tree and shrub removal which will occur during the nesting season
- Migratory bird nesting season: May 1 to August 31

Migratory Birds – Raptors

- Raptors
  - Raptor nest surveys shall be conducted annually where construction will occur during the nesting season
  - Raptor nesting season: identified by species
  - *USFWS Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances*

Migratory Birds – Swallows

- Swallows
  - Nests shall be removed, prior to nesting, from existing bridges planned for reconstruction during the swallow nesting period
  - Swallow Nesting Period: May 1 to July 31
  - Deterrence devices shall be employed

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Hazardous Materials

- UST/LUST and Phase 2 sites identified in Informational Environmental Plan Sheets
- Document the location of all re-used industrial byproduct (slag)
- Industrial byproduct shall not remain exposed or at the final ground surface

Cultural Resources

- Determination of Eligiblity/Finding of Effect
- Eligible properties identified in DOE; impacts identified in FOE
- Eligible and ineligible properties identified in the Environmental Plan Sheets and DOE
- Changes in eligibility or effect shall be submitted to the Department for SHPO concurrence
- Additional impact to eligible properties may trigger revisiting environmental documentation

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Noise Walls

- All areas identified that qualify in accordance with UDOT Noise Abatement Policy
- Selected balloting to be conducted by the Department during Summer 2009 (Results to be disclosed)
- Noise wall dimensions and locations, which are proposed as a result of new design, shall be submitted to and approved by the Department
- Bicentennial Park

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Compliance

- Environmental Protection Personnel
  - Environmental Control Supervisor (ECS)
  - Archaeologist
  - Wetland Specialist
  - *Fisheries Biologist*
- Environmental Protection Training
  - Permit conditions and commitments
  - Species and wetland identification
  - Demonstrate success (verification)
- Monitoring Reports
  - Violations, discovery, agency involvement

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Drainage

Jonathan Clegg |Drainage Design Manager

UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Overview

- Local Coordination
- Onsite Drainage
- Offsite Drainage
- Agreements
- Select design requirements

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Local Coordination

- Connection to local systems by agreement only
  - Connection criteria in RFP and Utility Agreements
- Meeting notes in Informational Document section
  - Provide background and context
- DB to verify location, ownership, size, material, condition, etc.
  - First get familiar with information that is already provided
  - Meet with local entities

UTAH COUNTY
I-15 CORE
CORRIDOR EXPANSION

Onsite Runoff

- Detention
  - Post-Project peak releases ≤ Pre-Project peak releases for the full range of recurrence intervals thru design event
  - Total capacity of receiving systems cannot be exceeded without proper easements, permissions or improvements
  - Agreed on maximum release rates (Table 3C-3)
  - Right-of-way acquisition underway. To be done by I-15 CORE Team
  - Pond maintenance access

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Onsite Runoff cont.

Detention Basin Release Rate Criteria	
Jurisdiction	**Detention Basin Release Rate**
Springville City, Springville Irrigation Company, and Springville Drainage District	All discharges shall not exceed 0.15 cfs per acre for the 10-year, 24-hour event.
Provo City	All discharges shall not exceed 0.2 cfs per acre for the 10-year, 24-hour event.
Orem City	All discharges shall not exceed 60 gpm per acre for the 25-year, 24-hour event.
Lindon City, Pleasant Grove City, American Fork City	Lesser of pre-project, channel capacity, or 0.2 cfs per acre for the 10-year, 24-hour event.

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Onsite Runoff cont.

- Discharges
  - Co-mingle Project and non-Project storm drain flows only downstream of Project
  - Exceptions by agreement only
  - Provo City at Center Street
  - Orem City

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Onsite Runoff cont.

- Not allowed on Project
  - Storm drain lift stations
  - Retention ponds
  - Underground storage
  - Slot drains
- Pipe Sizes
  - Trunk line and laterals not hydraulically sized
  - Minimum pipe size is 18 in. for collection system

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Offsite Surface Water cont.

- Replace vs. extend
  - Existing cross drain pipes and culverts: replace in reconstruct areas, extend in widening areas
  - Minimum cross drain pipe culvert size is 24 in.
  - Onsite vs. offsite culverts
- Design Criteria
  - Design Q and headwater elevation (Table 3C-2)
- Some of existing cross drainage is via slag

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Offsite Surface Water cont.

Design Flow Criteria for Rivers, Streams, Canals, and Cross Drainages		
Location	**Design Flow**	**Status**
Dry Creek	550 cfs	Extend
Packard Drain	300 cfs	Extend
Hobble Creek	N/A	Shall not be replaced or modified.
Spring Creek	200 cfs	Extend
East Bay	1,300 cfs total combined all locations	Extend
Provo River	3,200 cfs with maximum upstream water surface elevation of 4532.4 NAVD88	Replace
American Fork River	2,440 cfs with maximum upstream water surface elevation of 4,570.0 NAVD88	Replace
Lake Bottom Irrigation Canal	Match existing capacity and geometry	Extend
West Union Canal	Match existing capacity and geometry	Replace
All other natural or storm drain crossings	50-year, 24-hour storm event	Replace
All other canal or irrigation crossings	Existing capacity and functionality as determined by coordination with owner unless modified by agreement.	Replace

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Groundwater

- Maintain and preserve functionality and capacity
- Land drains
  - Springville Drainage District
- Groundwater drains
  - Orem City, Lake Bottom Irrigation Company, Verl Cook Nursery
- Well abandonment
  - Per Utah Division of Water Rights procedures

Irrigation

- Limited Construction Window
  - November 1 to March 31
  - See Table 3C-2 for design capacities

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Selected Design Information

- 50-year design life for all drainage and irrigation facilities
- Use of trench drains
- Drainage Report
  - Informational Document section
  - One per design segment plus corridor summary

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Structures

Larry Reasch

UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Seismic Design Criteria

- AASHTO *Guide Specification for LRFD Seismic Bridge Design*
  - Return period varies based on bridge definition
- Seismic Response defined for three bridge types
  - Critical
  - Essential
  - Non-critical/Non-essential

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Seismic Design Criteria cont.

- Bridge type definition
  - Critical Bridges

    "Operational with little or no damage after the design seismic event."
  - Return Period 7% in 75 years
  - Check collapse for Return Period 3% in 75 years

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Seismic Design Criteria cont.

- Bridge type definition
  - Essential Bridges

    "Bridges that must remain open to emergency traffic immediately after a seismic event and must be repairable after the design seismic event, and non-conventional bridges as defined by C3.1 of the Guide Specification."
  - Return Period 3% in 75 years
  - Check collapse for Return Period 3% in 75 years

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Seismic Design Criteria cont.

- Bridge type definition
  - Non-critical/Non-essential

    "All non-critical and non-essential bridges."
  - Return period 7% in 75 years

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Seismic Design Criteria cont.

- Retaining walls
  - Retaining wall seismic criteria will have similar criteria as the bridge near the wall

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Accelerated Bridge Construction

- Not mandated, but available as a tool for accelerated construction

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Geotechnical

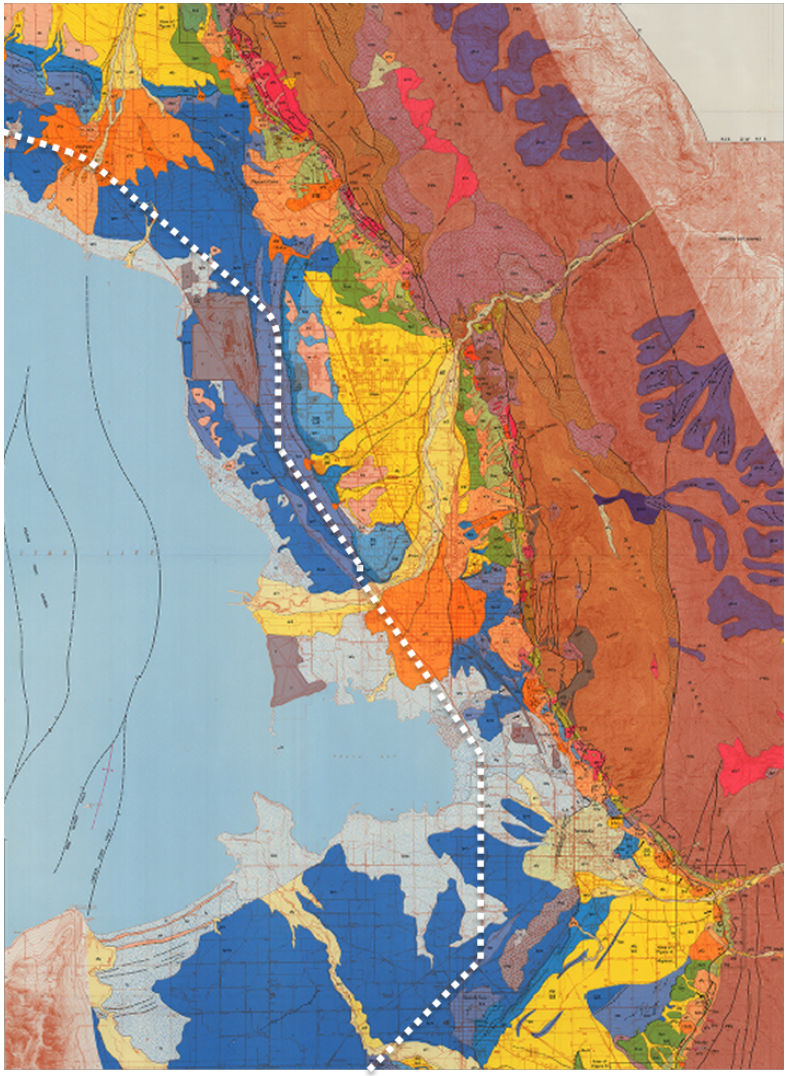
Brad Price | Geotechnical Design Manager

UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Geotechnical

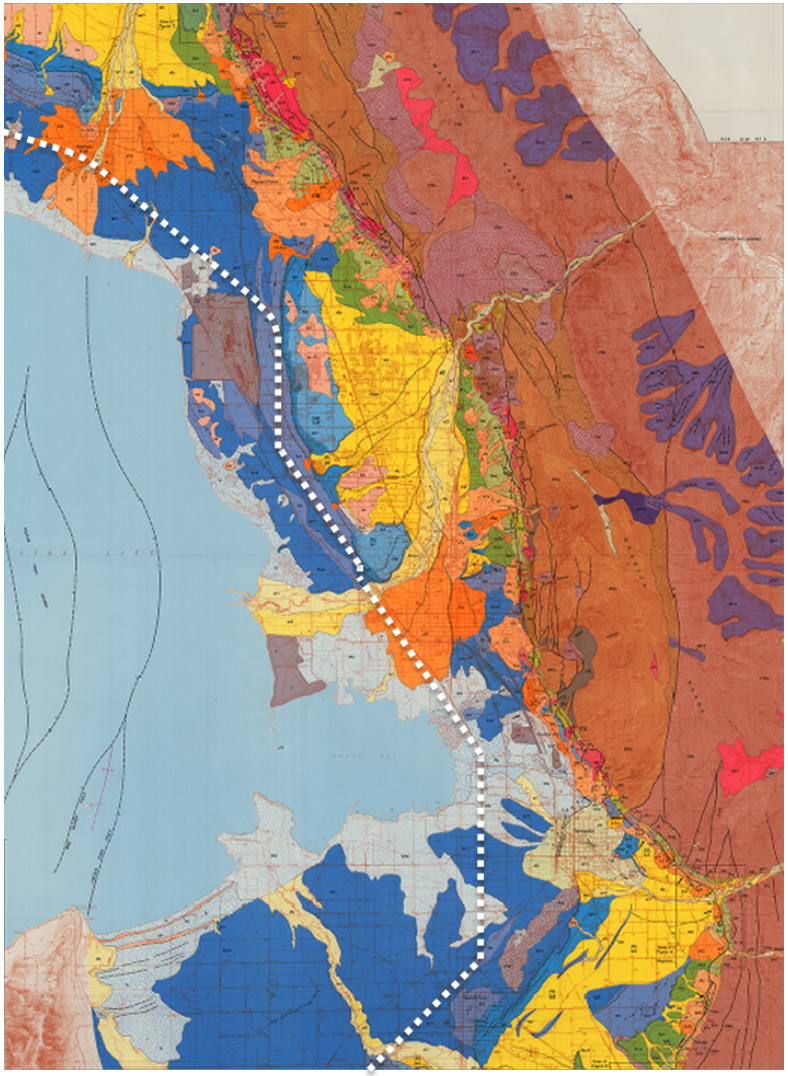
- Geologic Map
  - Surficial Geologic Map of the Wasatch Fault Zone – Eastern Part of Utah Valley, Utah County and Parts of Salt Lake and Juab Counties, Utah (Machette, 1992)
- Wasatch Fault Zone – Provo Segment
  - Mapped within 2 to 4 miles of Corridor



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Overview of Surficial Deposits

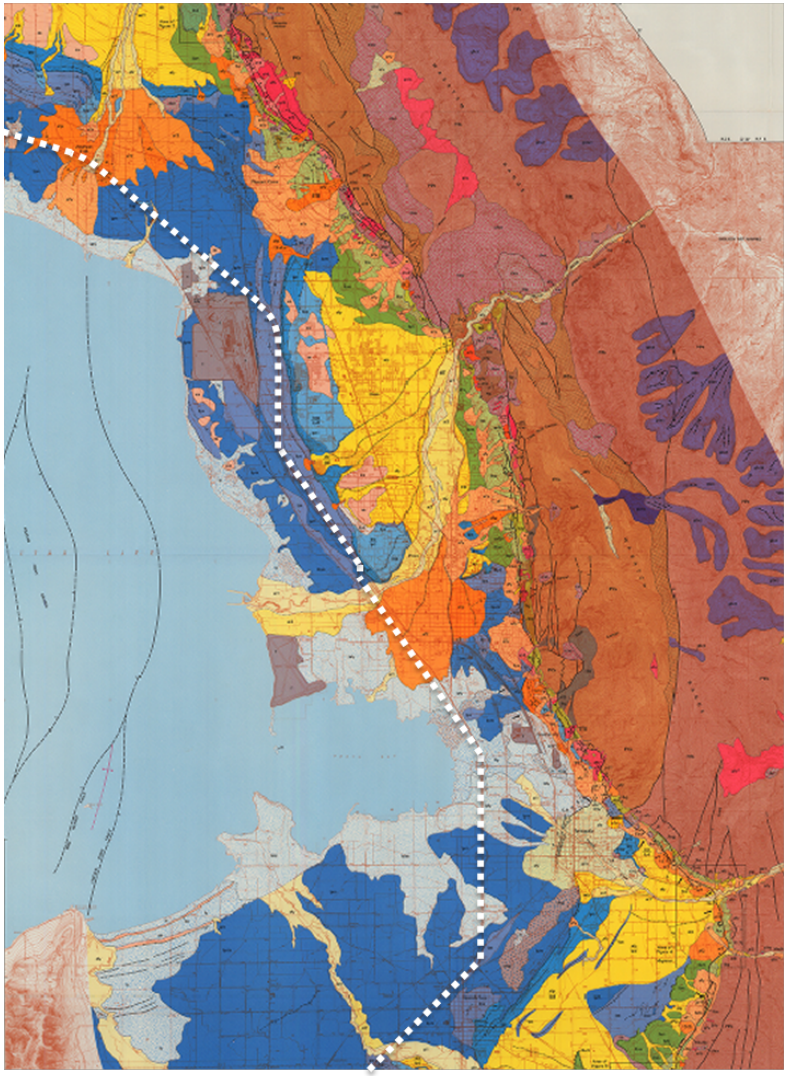
- Lacustrine (Bonneville) Silt and Clay
  - American Fork through Lindon, parts of North Provo, Springville, and Spanish Fork
- Lacustrine (Bonneville) Sand
  - Orem, parts of North Provo, Spanish Fork U.S. 6
- Stream and Fan Alluvium
  - American Fork River, Provo River Areas (including Center Street)



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Overview of Surficial Deposits cont.

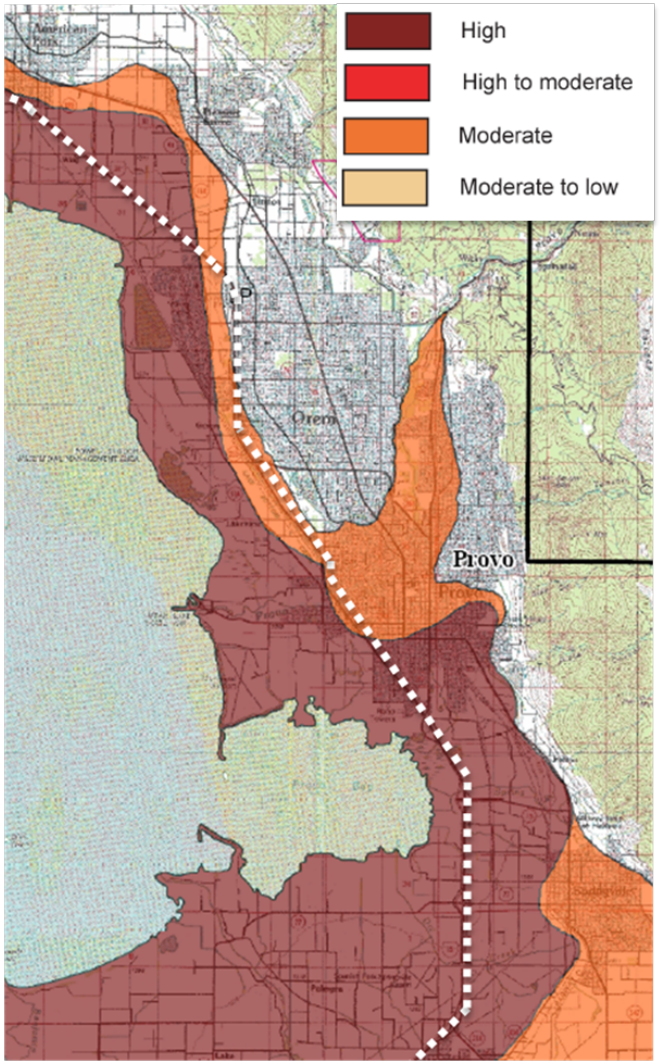
- Younger Lake and Marsh Deposits
  - South Provo, some locations in Pleasant Grove, Lindon, Springville/Spanish Fork
- Deltaic Deposits east of I-15 in Orem, North Provo
- Lateral Spread Deposits near U.S. 6 in Spanish Fork



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Liquefaction Potential

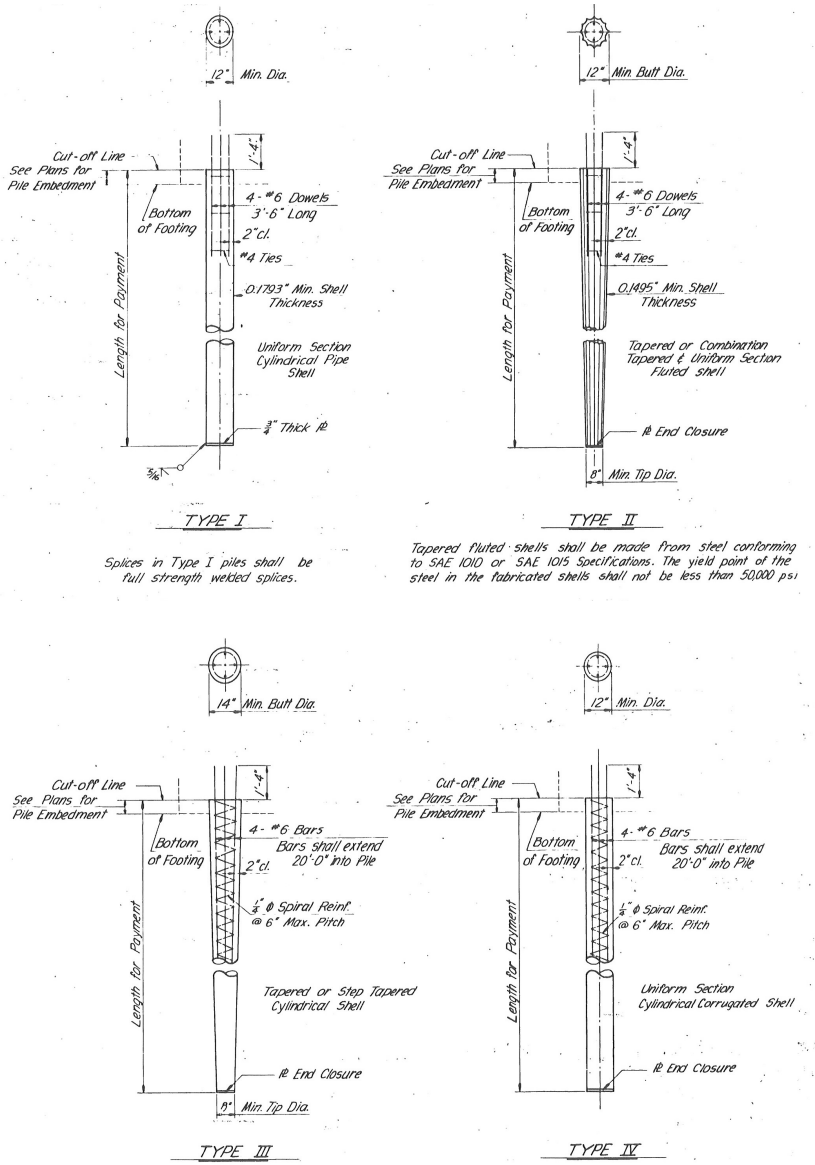
- Liquefaction Special Study Areas, Wasatch Front and Nearby Areas, Utah (Christenson and Shaw, 2008)



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Existing Bridge Foundations

- Most Bridges on Piles
  - Original bridges typically used two rows of abutment piles, with front row battered
- Spread Footings
  - Provo Center Street Area (River to 900 South)
  - Orem 1600 North, 800 North, Center Street
  - American Fork 300 West



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Geotechnical Information Provided

- Previous Geotechnical Investigations
  - Original Construction
  - Recent Projects: University Avenue, University Parkway, Pleasant Grove Interchange, Springville (SR-75, SR-77), 2005 Median Widening (Lehi-Orem), American Fork Main
- Geotechnical Information from Previous Construction
  - Settlement, Piezometers
  - Pile Driving Logs, PDA Tests

UTAH COUNTY
I-15 CORE
CORRIDOR EXPANSION

Geotechnical Data Provided

- Engineering Data: I-15 CORE Geotechnical Investigations (Part 6)
  - 115 pavement borings in Mainline (avg. 10 per mile)
  - Generally 2 CPT holes and 2 borings with lab testing for each bridge reconstruction site (26 sites)
  - 36 borings with lab testing for embankments/walls between bridge sites
  - Pavement borings for ramps and cross streets
  - Some shallow holes and permeability tests at potential detention basin locations

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Risks and Opportunities

- Pavement
  - Opportunity to incorporate existing pavement
- Settlement
  - Areas of varying susceptibility (see records)
  - Mitigation methods may vary by location
- Stability/Soft Soils
  - Accommodate with special design/construction/ monitoring
  - Ground improvement

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Risks and Opportunities cont.

- Seismic
  - Liquefaction
  - Lateral Spread
  - Seismic Stability / Bearing Capacity
  - Ground Improvement

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

ATMS and ETC

David Jones| ATMS ETC Design Lead

UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

ATMS and ETC

- Maintain existing ATMS systems and/or replace with temporary devices
- All ATMS/ITS, traffic signals and ETC systems must be fully compatible with existing TOC software systems
- Requirements relative to coordination between the DB and the ETC Contractor will be issued in addenda

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

ATMS and ETC

- Special provisions to expand and/or clarify UDOT ATMS Standards and ATMS Typical Drawings will be issued by addenda
- All ATMS/ITS devices and equipment will be State furnished
- All ETC devices and equipment will be ETC Contractor furnished

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Aesthetics and Landscaping

Brian Elrod| Context Sensitive Solutions Lead

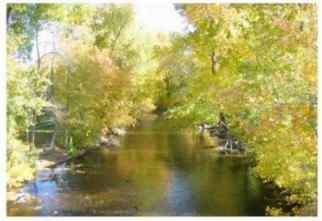
UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Context and Vision

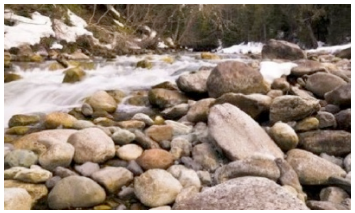










UTAH COUNTY CORE 15 CORRIDOR EXPANSION

UDOT Standard

BRIDGE BARRIER

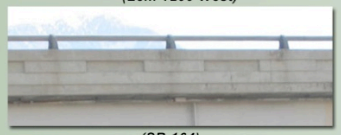

(American Fork 500 E)


(SR-92)


(Lehi 1200 West)


(14600 South)


(2700 N)


(SR-164)

RETAINING WALL


(University Parkway)


(University Avenue)

MEDIAN BARRIER

NOISE WALL


I-15 Corridor Side


Community Side - End Condition

BRIDGE STRUCTURE


(American Fork 500 E)


(SR-92)


(Lehi 1200 West)

BRIDGE ABUTMENT WALL


(University Parkway)


(SR-164)

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

UDOT Standard

SIDEWALK / PAVING

Plain Concrete
(American Fork 500 E)

Plain Concrete
(Orem 800 N)

RAILING / SCREEN

(American Fork 500 E)

ROADWAY LIGHT

SIGN STRUCTURE

ROW FENCE

Wire Fence

Galvanized Chain Link Fence

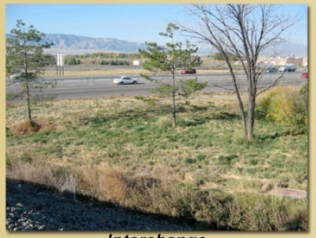
TRAIL / OPEN SPACE

Path with Plain Retaining Walls
(Provo River Trail)

Path with Chain Link Enclosure
(Provo River Trail)

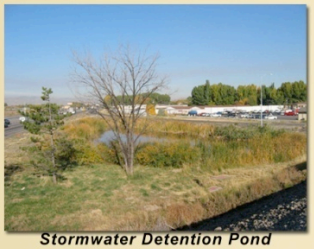
LANDSCAPE

Interchange
(North Payson)



Interchange
(American Fork 500 E)

Interchange
(Orem 800 N)



Stormwater Detention Pond
(American Fork 500 E)

Roadside

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Corridor Baseline vs. Enhancement

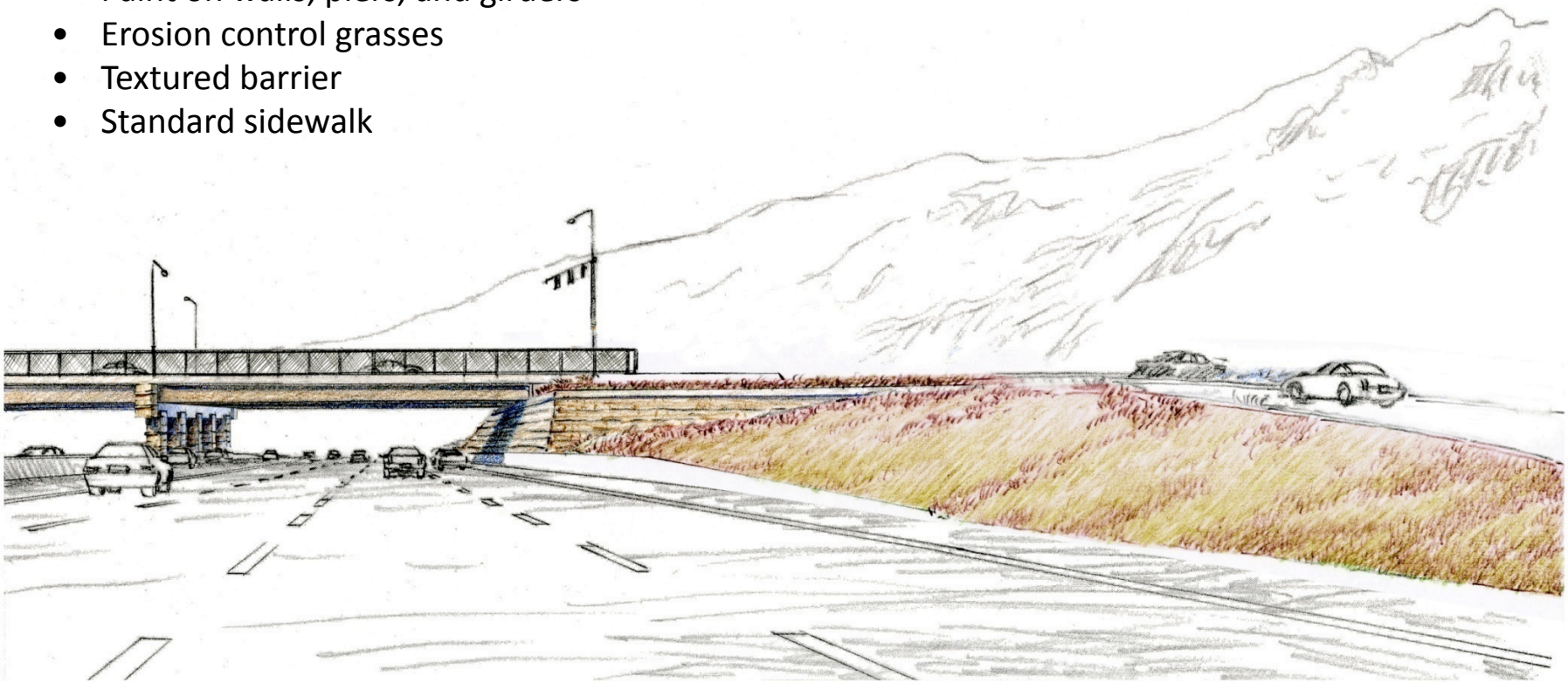
- Corridor baseline
  - Contractual
  - Paid by UDOT
  - Applies to all new elements
- Enhancement
  - Participation is up to each city
  - Cities will have $100K allowance per reconstructed interchange
  - Additional enhancement will be paid by the cities
  - Cities will decide the enhancement of their choice by July
  - Decisions will be part of the agreements and included in addendum

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Typical Crossover Bridge – Baseline

Corridor Baseline:

- Vinyl coated chain link fence
- Cobra head light and pole on bridge
- Formliner pattern on walls and piers
- Paint on walls, piers, and girders
- Erosion control grasses
- Textured barrier
- Standard sidewalk



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Typical Crossover Bridge - Enhancement

Enhancement Opportunities:

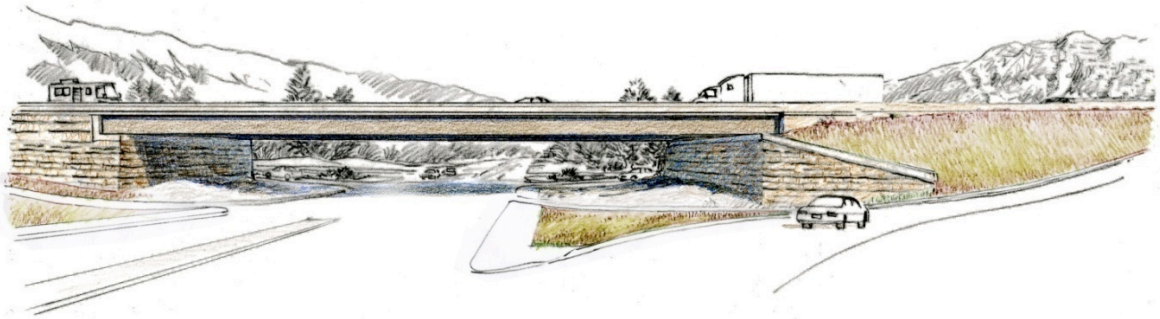
- Ornamental fence
- Rockscape

Enhancement Opportunities:

- Ornamental fence
- Pedestrian light
- Ornamental landscape with irrigation
- Enhanced sidewalk

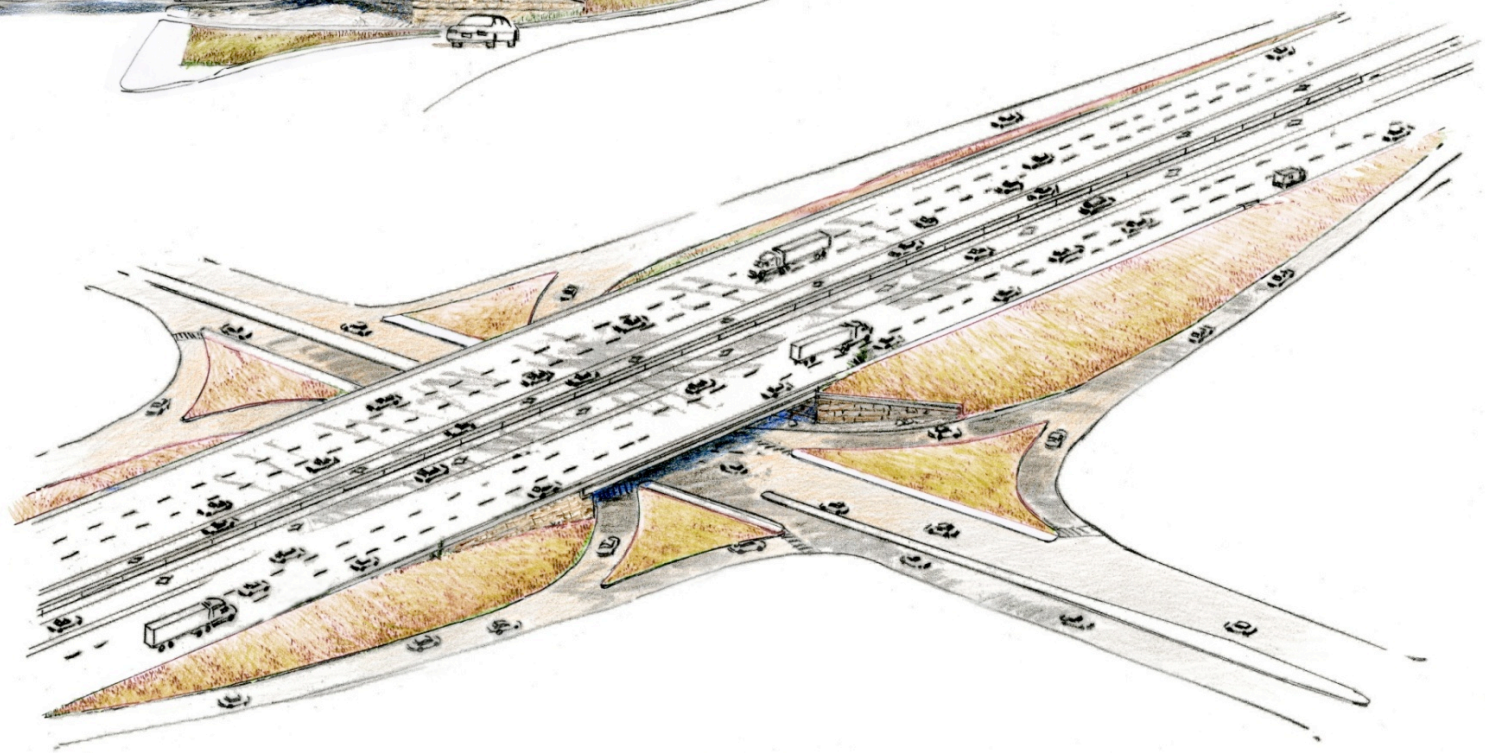
UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Typical Local Underpass – Baseline



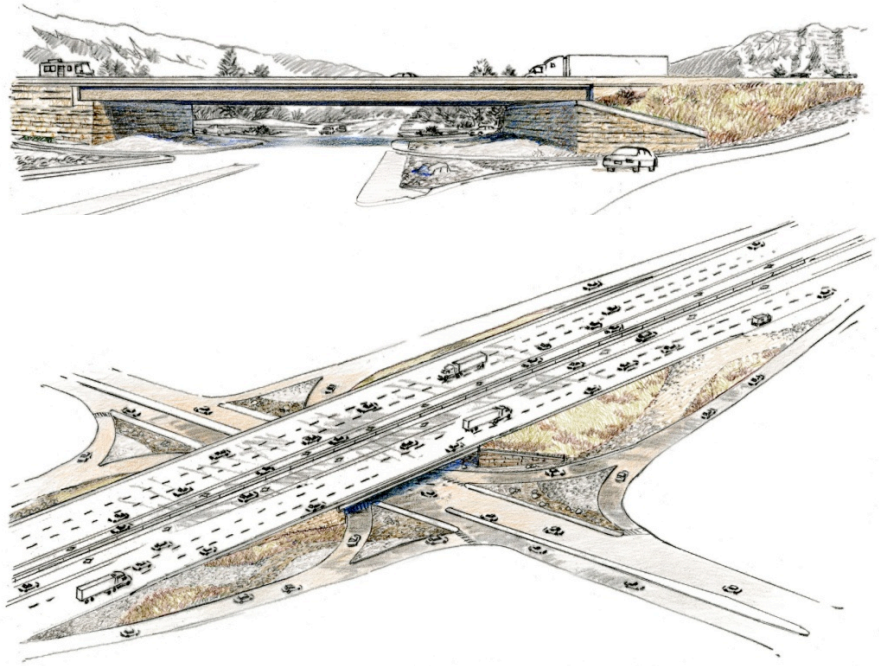
Corridor Baseline:

- Cobra head light and pole on bridge
- Formliner pattern on walls and piers
- Paint on walls, piers, and girders
- Erosion control grasses
- Textured barrier
- Standard sidewalk



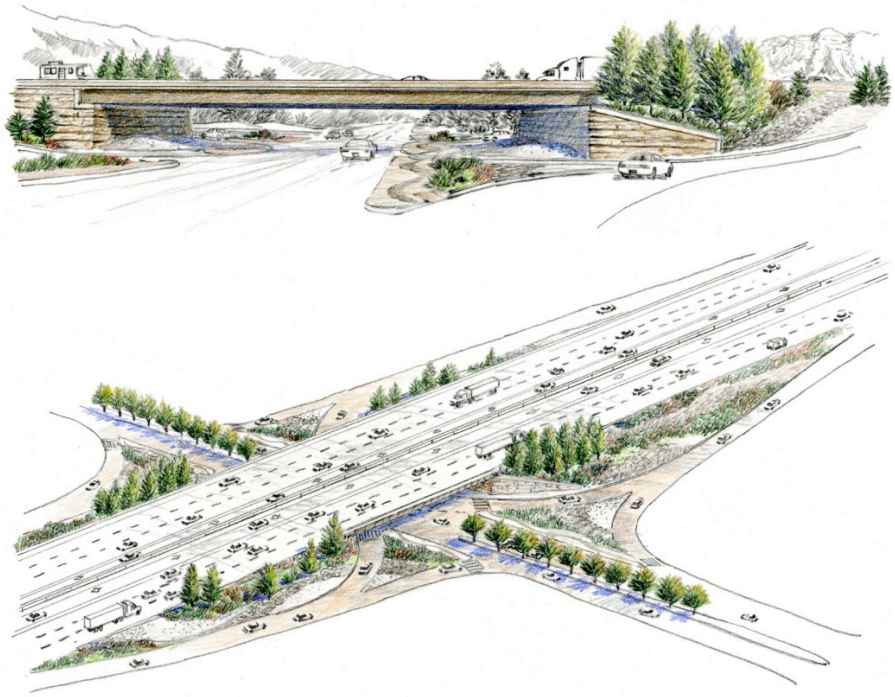
UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Typical Local Underpass - Enhancement



Enhancement Opportunities:

- Rockscape



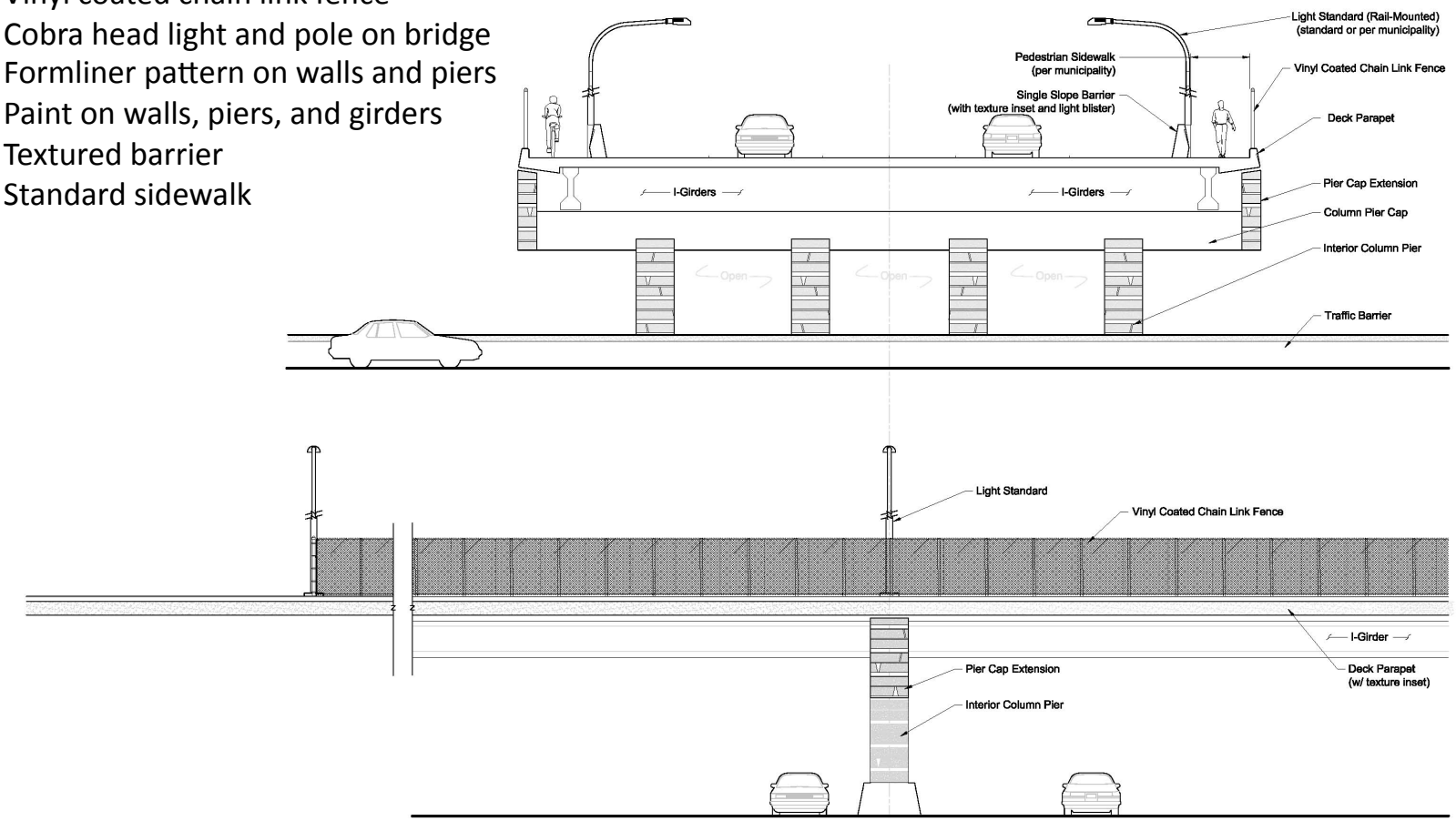
Enhancement Opportunities:

- Pedestrian light
- Ornamental landscape with irrigation
- Enhanced sidewalk

Piers at Overcrossing – Corridor Baseline

Corridor Baseline:

- Vinyl coated chain link fence
- Cobra head light and pole on bridge
- Formliner pattern on walls and piers
- Paint on walls, piers, and girders
- Textured barrier
- Standard sidewalk

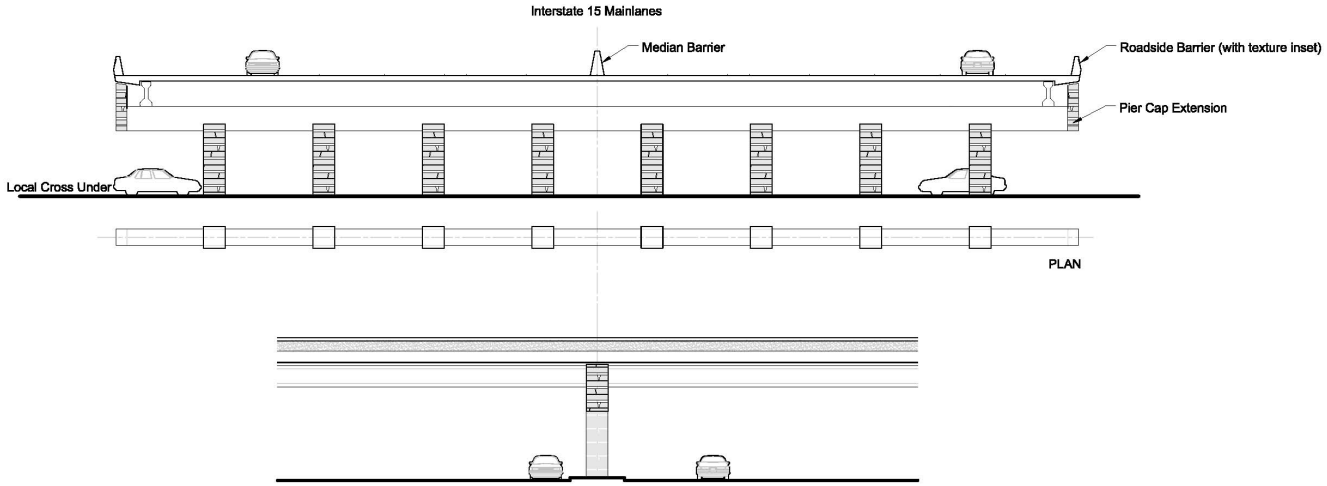


CROSS OVER STREET BRIDGE - ELEVATION
SCALE: 1" = 10'-0"

Piers at Undercrossing

Corridor Baseline:

- Formliner pattern on walls and piers
- Paint on walls, piers, and girders
- Textured barrier

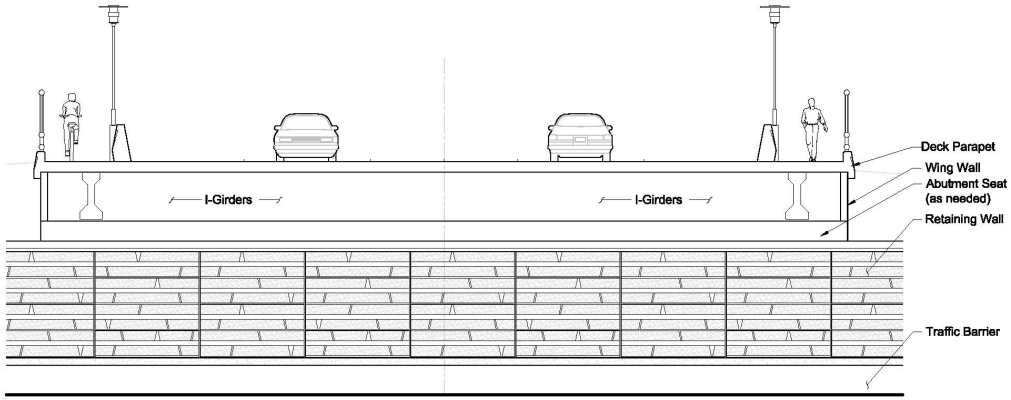


I-15 MAINLINE BRIDGE - ELEVATION
SCALE: 1" = 20'-0"

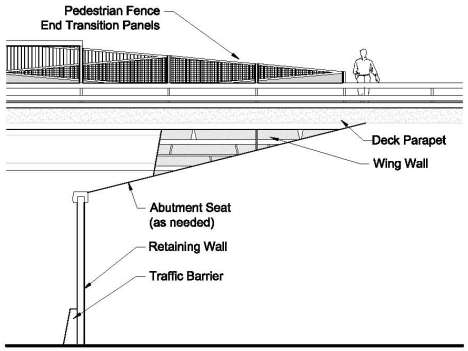
Abutment Walls at Overcrossing

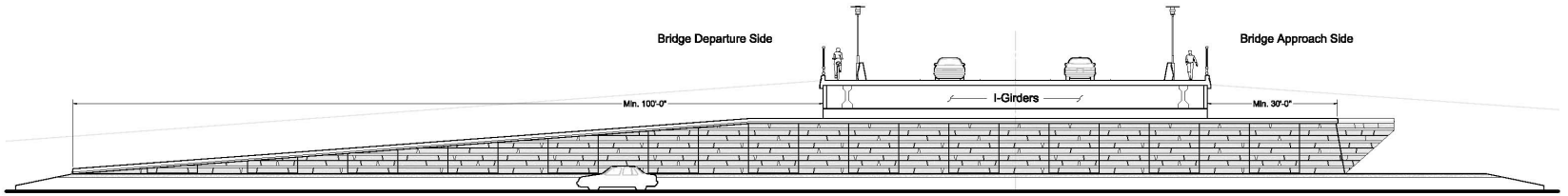
Enhancement Opportunities:

- Ornamental fence
- Pedestrian light
- Enhanced sidewalk



CROSS OVER STREET ABUTMENT - ELEVATION
SCALE: 1" = 10'-0"



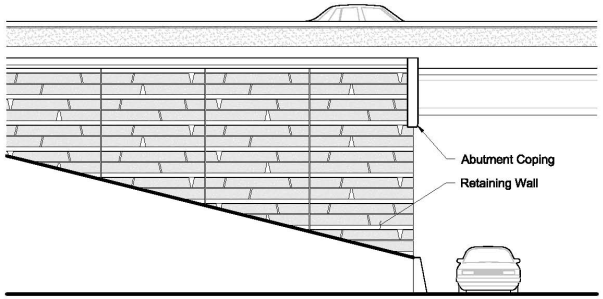


CROSS OVER STREET ABUTMENT - ELEVATION
SCALE: 1" = 20'-0"

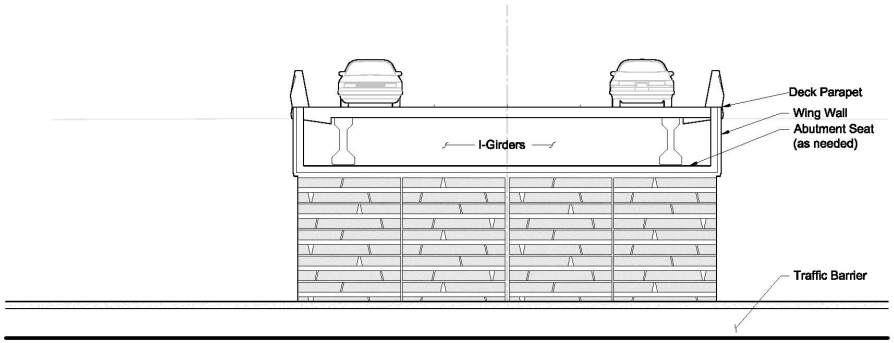
Abutment Walls at Overcrossing without Interchange

Corridor Baseline:

- Formliner pattern on walls and piers
- Paint on walls, piers, and girders
- Textured barrier



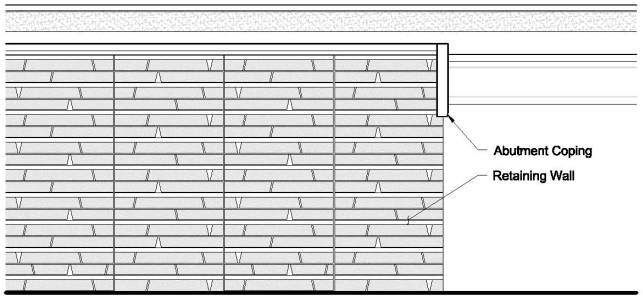
CROSS OVER STREET (RURAL) ABUTMENT - ELEVATION
SCALE: 1" = 10'-0"



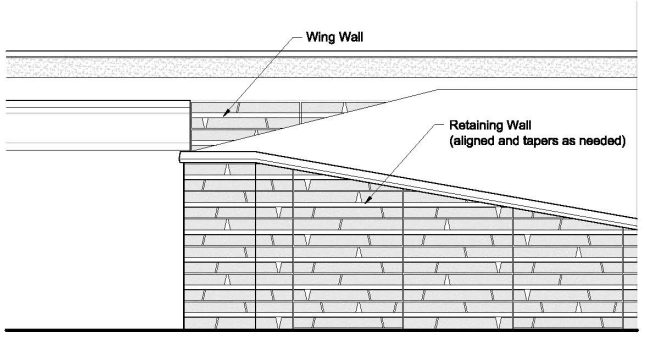
Abutment Walls at Undercrossing

Corridor Baseline:

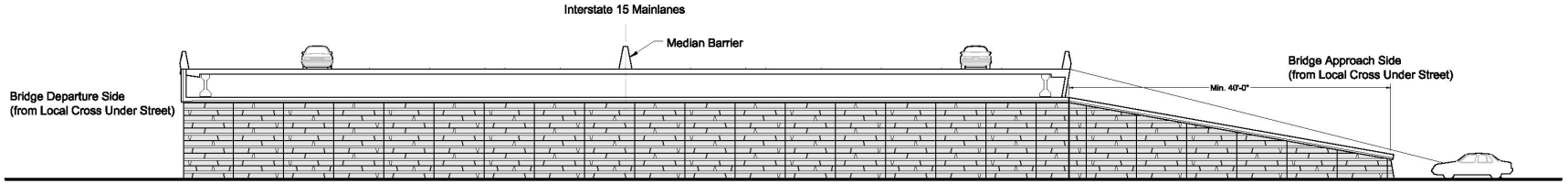
- Formliner pattern on walls and piers
- Paint on walls, piers, and girders
- Textured barrier



I-15 MAINLANE ABUTMENT -DEPARTURE SIDE ELEVATION
SCALE: 1" = 10'-0"



I-15 MAINLANE ABUTMENT -APPROACH SIDE ELEVATION

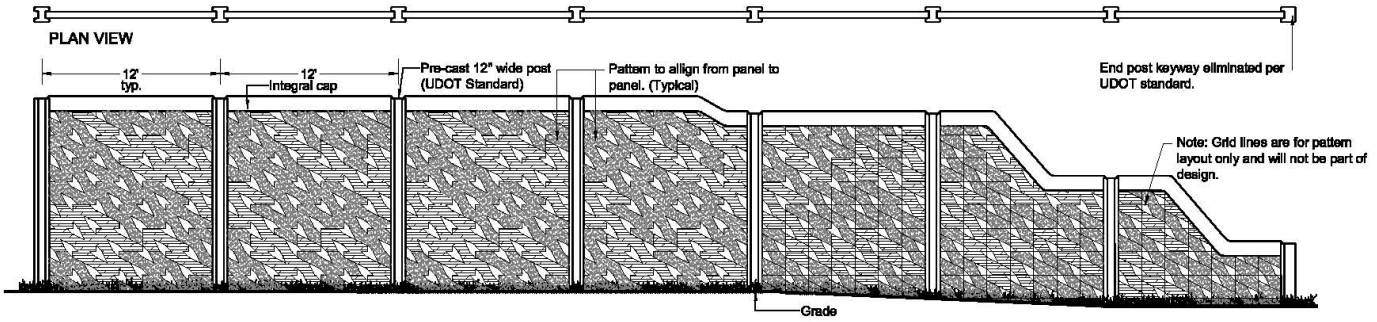


I-15 MAINLANE ABUTMENT - ELEVATION
SCALE: 1" = 20'-0"

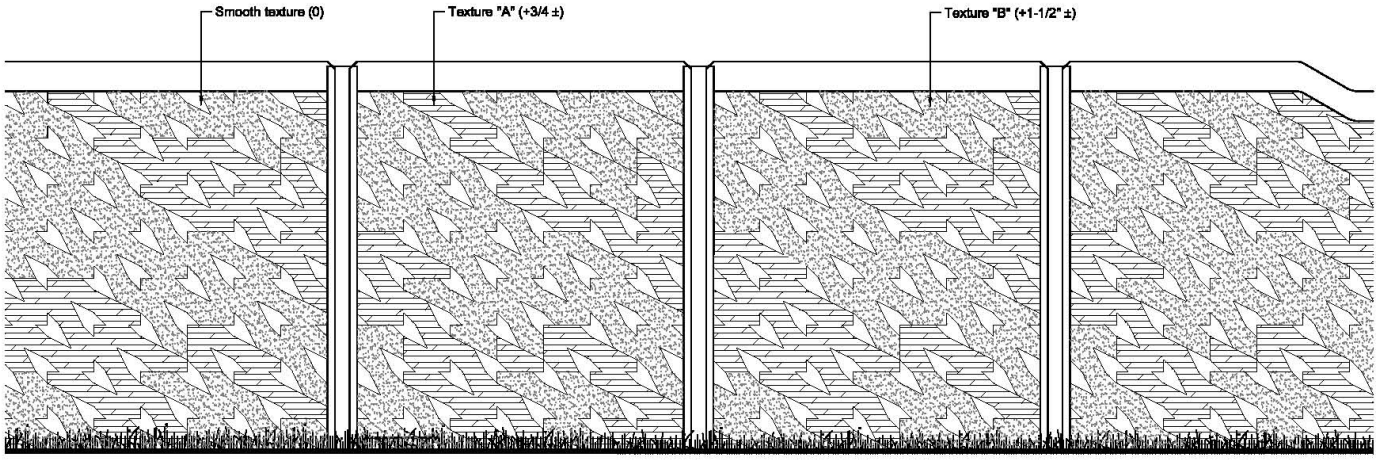
Noise Walls

Corridor Baseline:

- Custom formliner pattern on corridor side noise wall
- Paint on noise wall



NOISE WALL ELEVATION FREEWAY SIDE
SCALE: 1/8"= 1'-0"



NOISE WALL ELEVATION FREEWAY SIDE- DETAIL
SCALE: 1/4"= 1'-0"

TEXTURE "A"
SCALE: NO SCALE

TEXTURE "B"
SCALE: NO SCALE

TEXTURE DESIGN

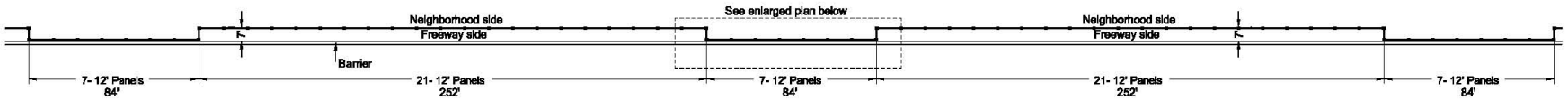
The texture design relates to the texture of the retaining walls and is abstract pattern designed to evoke landform,geology,flowing water, cloud formations etc.The Intent is to develop 3 panels (maximum) to have a continuous visual flow between panels and help break the reptition in long runs of walls. This texture is a layered approach and is a repetitive pattern developed on a grid.

General Notes:
1.Refer to UDOT Standard Dwgs. SW 2,SW 3A-B, 4A-C, SW 5, SW6

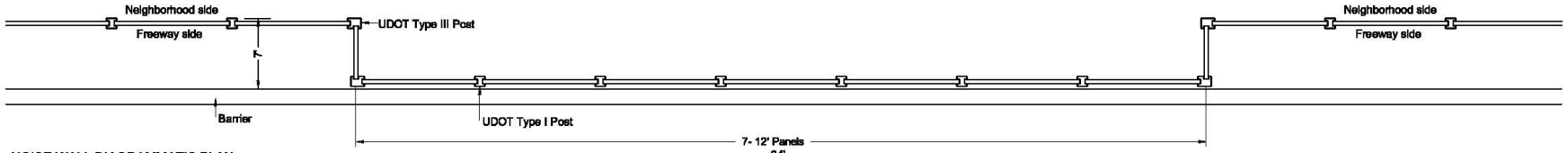
Noise Walls

Corridor Baseline:

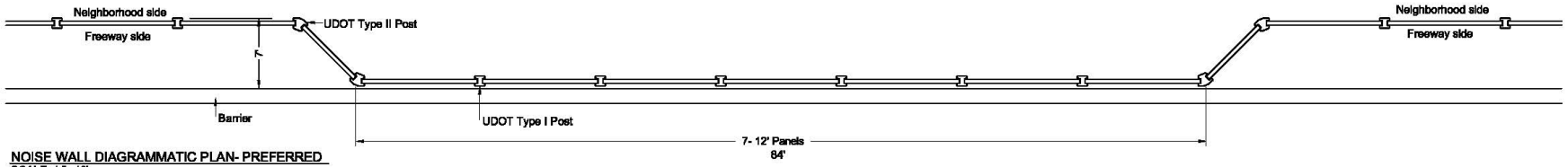
- Standard formliner pattern on community side noise wall
- Paint on noise wall



NOISE WALL DIAGRAMMATIC PLAN
SCALE: 1 "= 50'-0"



NOISE WALL DIAGRAMMATIC PLAN
SCALE: 1 "= 10'



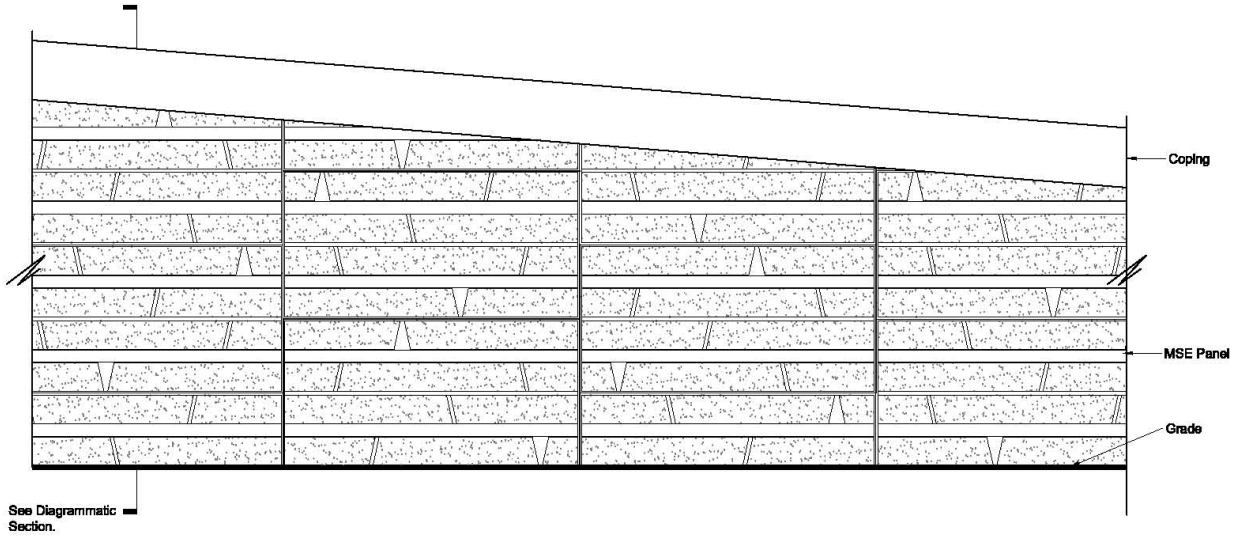
NOISE WALL DIAGRAMMATIC PLAN- PREFERRED
SCALE: 1 "= 10'

TEXTURE OPTIONS- NOISE WALLS- NEIGHBORHOOD SIDE
REFER TO UDOT DWG. SW 6

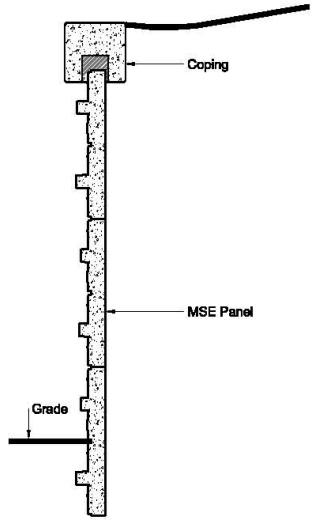
Retaining Walls

Corridor Baseline:

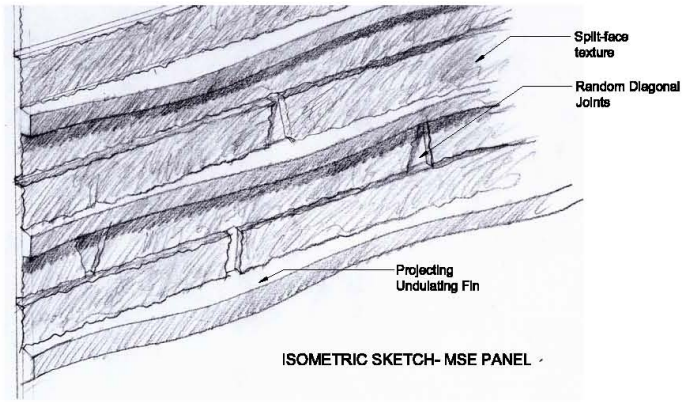
- Custom formliner pattern on corridor side and community side retaining wall
- Paint on retaining wall



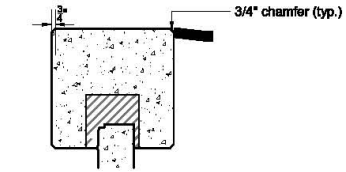
MSE WALL ELEVATION
SCALE: 1/4"= 1'-0"



DIAGRAMMATIC SECTION- MSE WALL
SCALE: 1/4"= 1'-0"



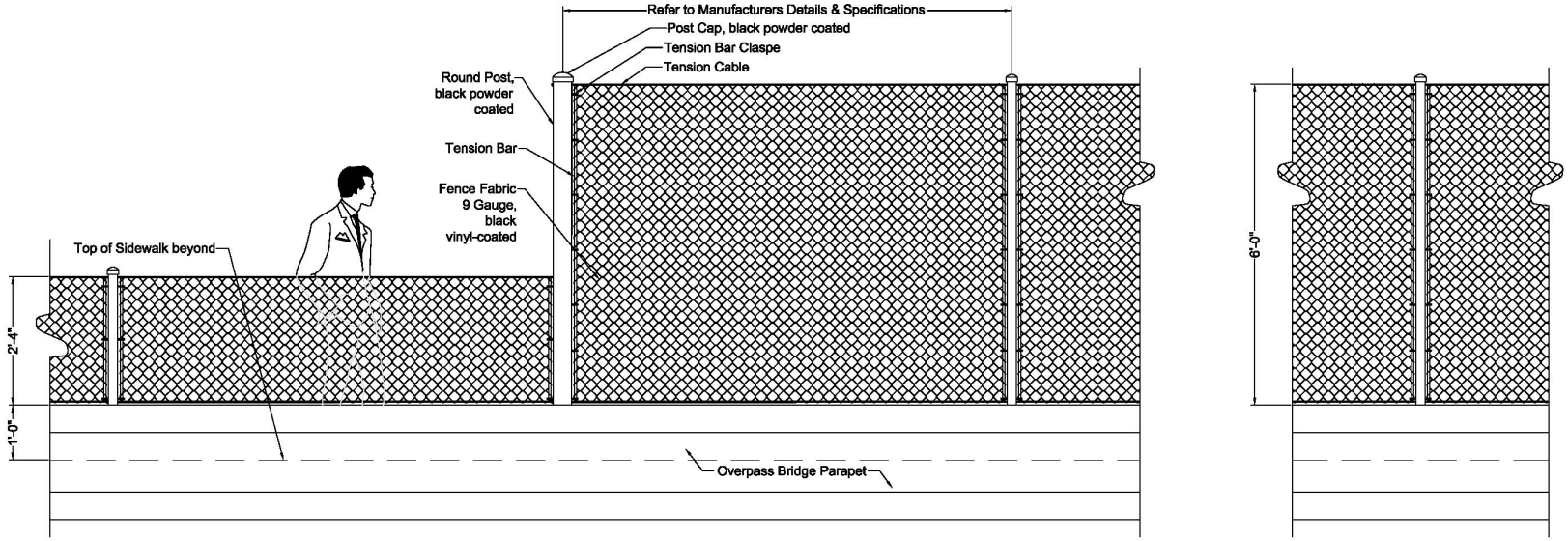
ISOMETRIC SKETCH- MSE PANEL



COPING DETAIL- SECTION
SCALE: 1/2"= 1'-0"

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Pedestrian Fencing – Corridor Baseline

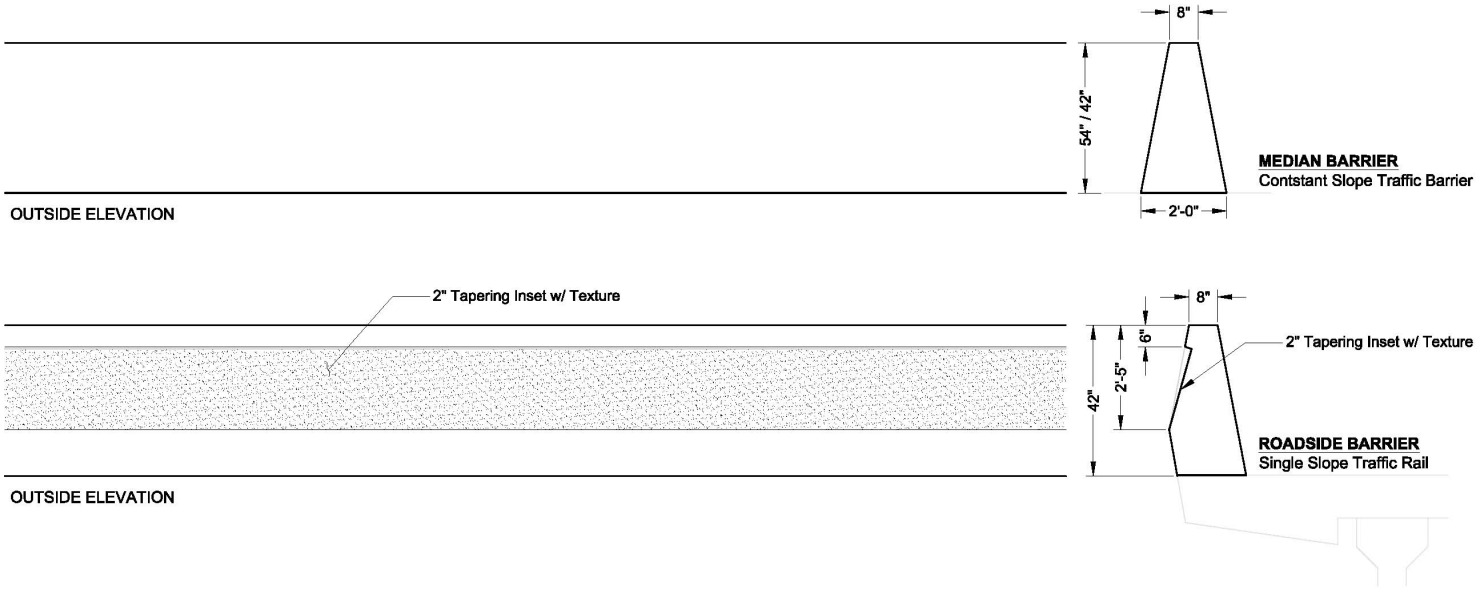


TRANSITION FENCE

FULL HEIGHT FENCE

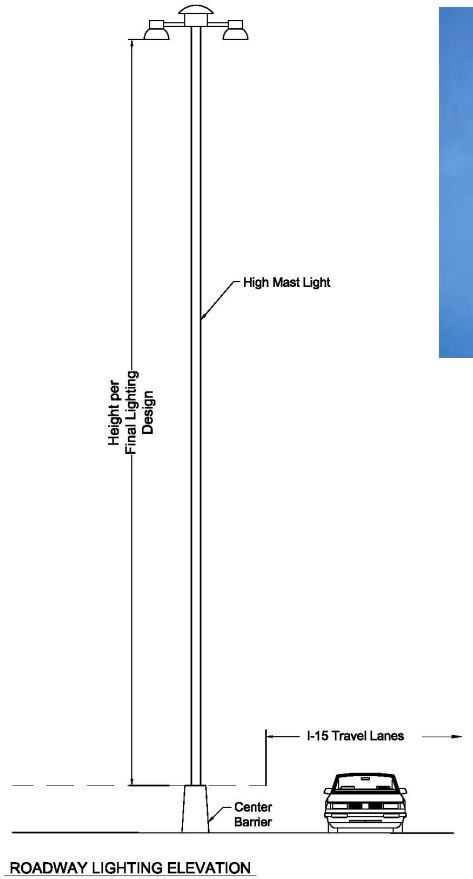
UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Barriers



BARRIERS
SCALE: 3/8" = 1'-0"

Mainline Roadway Lighting



ROADWAY LIGHTING ELEVATION

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

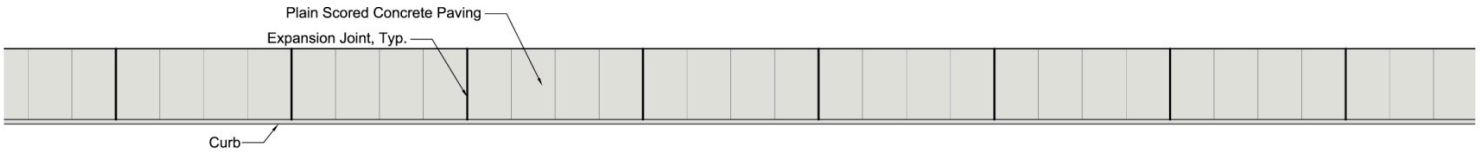
Pedestrian Lighting

Corridor Baseline

Enhancement

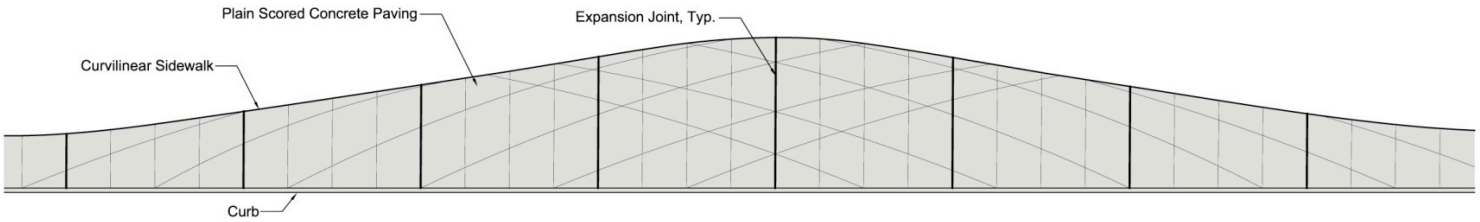
UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Paving - Sidewalk

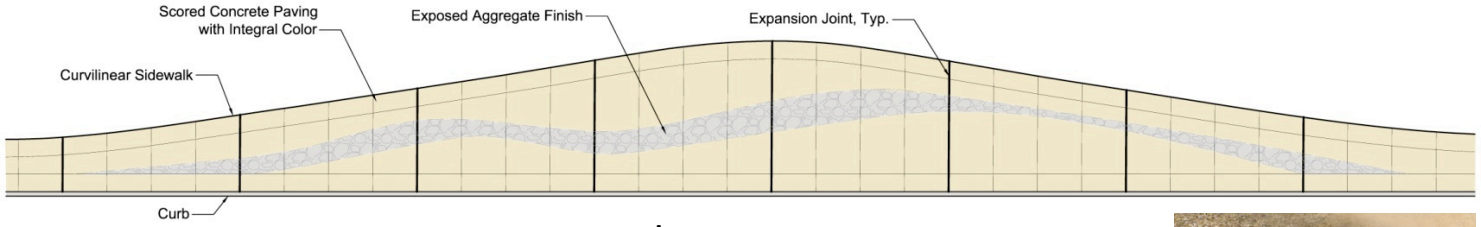


CORRIDOR STANDARD PAVING PATTERN - TYPICAL PLAN

Corridor Baseline



PAVING PATTERN OPTION 1 - TYPICAL PLAN



PAVING PATTERN OPTION 2 - TYPICAL PLAN

Enhancement

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

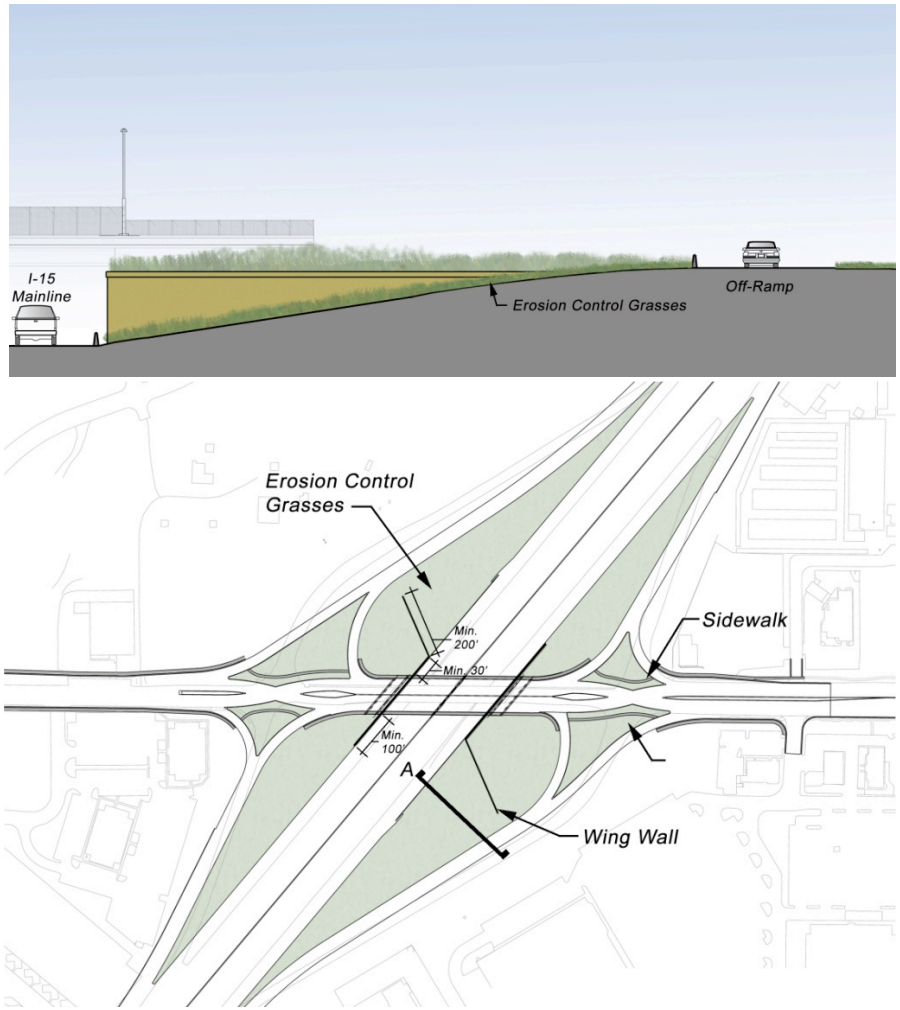
Landscape – Plant Material

Corridor Baseline

Enhancement

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

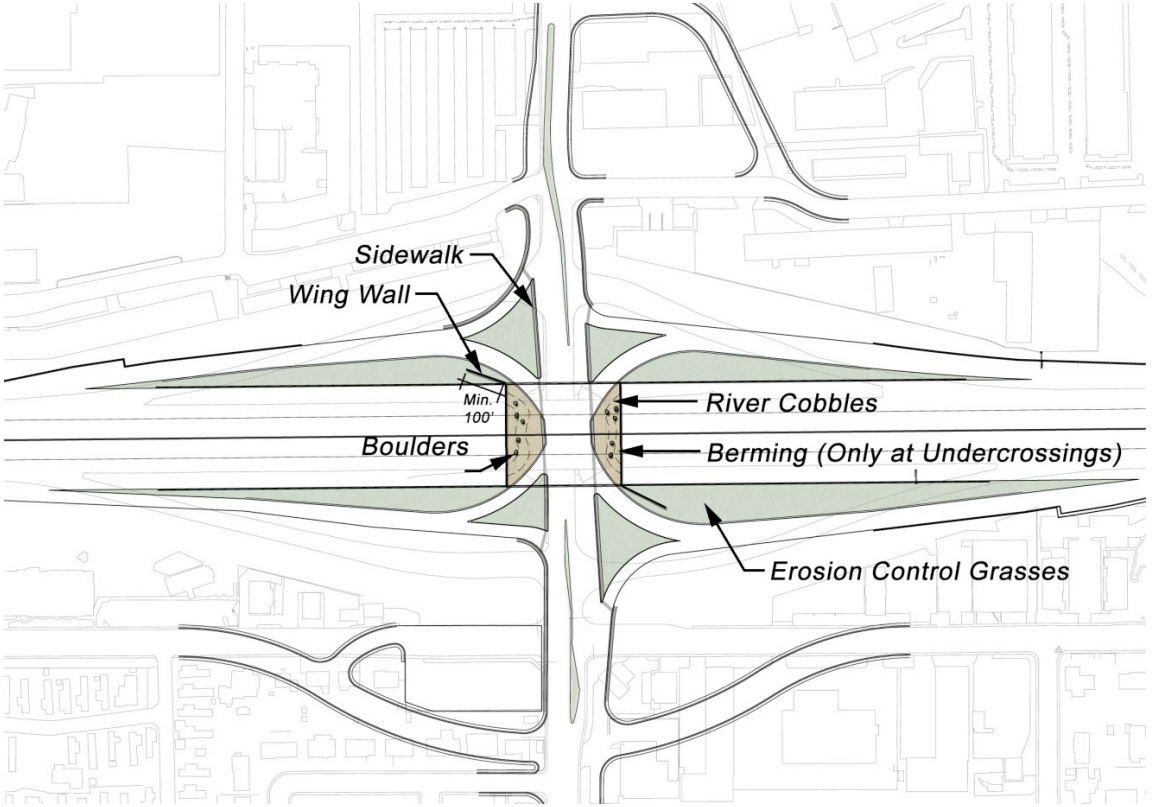
Landscape – Overcrossing Interchange



Corridor Baseline

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Landscape – Undercrossing Interchange



Corridor Baseline

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Colors

Base Color

Applications:

- Barriers (Median, Roadside)
- Retaining Walls and Cap
- Noise Walls
- Abutment Walls and Coping
- Paving (Sidewalks)
- Piers

Accent Color

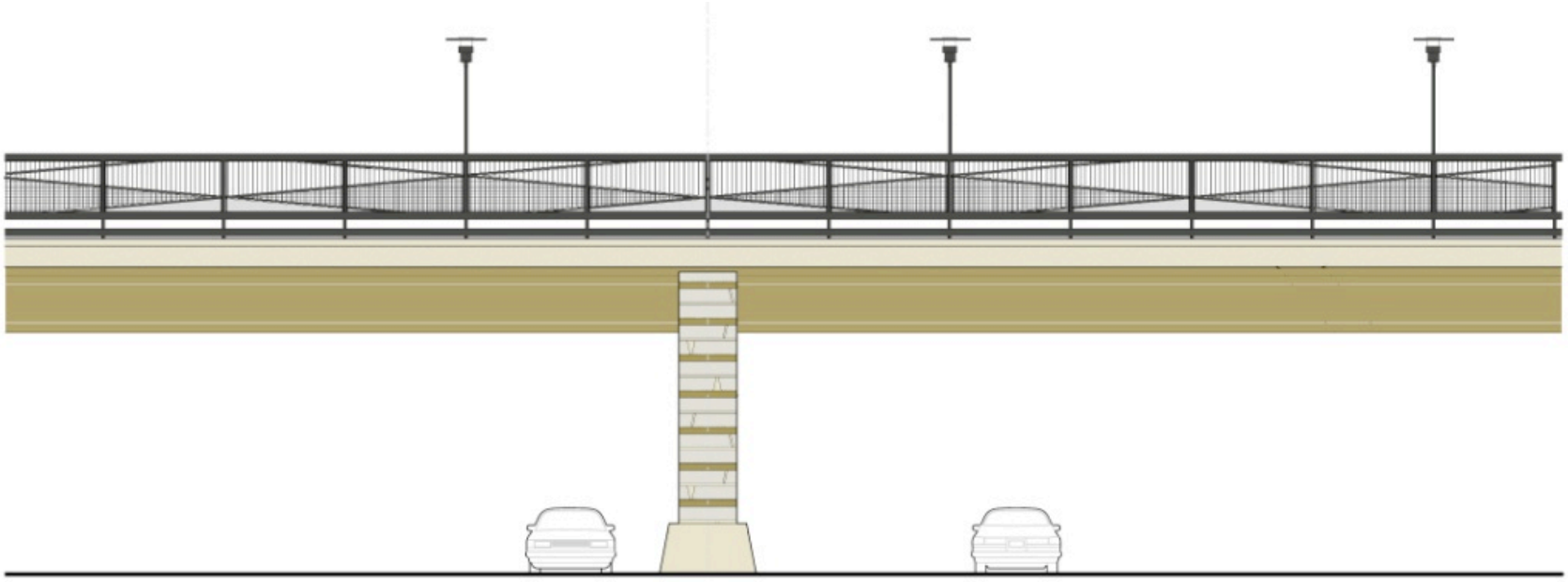
Applications:

- Retaining Wall Undulating Fins
- Noise Wall Cap and Post
- Abutment Wall Undulating Fins
- Bridge Girders (all visible sides)
- Piers Undulating Fins

Metal Work Color

Applications:

- Roadway Lighting at Overcrossings and Undercrossings
- Under Bridge Lighting
- Pedestrian Lighting
- Pedestrian Fencing
- Signal Light Structures



UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Public Involvement

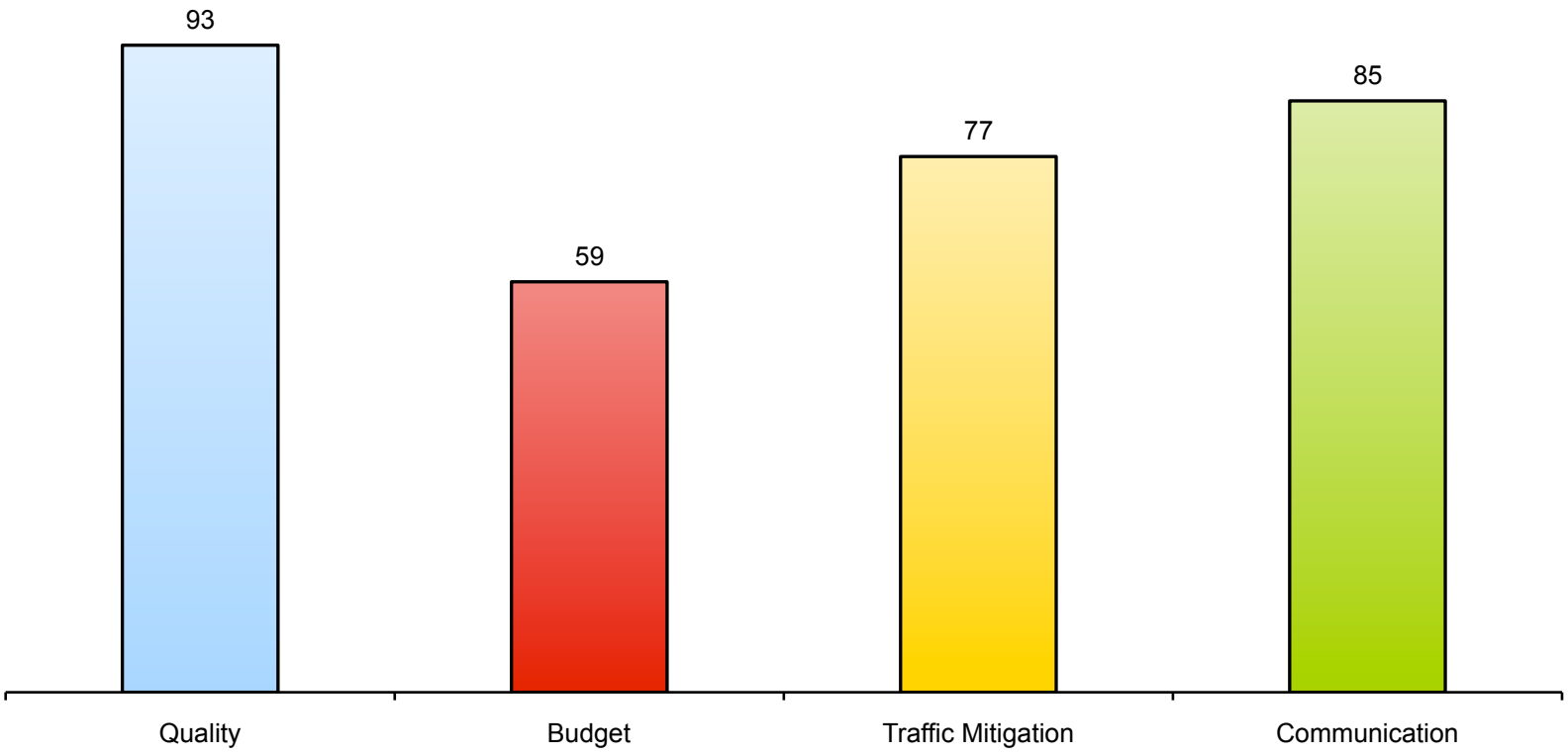
Dave Smith | Communications Director

UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Utah County Residents, August 2008 Survey

Public Confidence Ratings



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Utah County Residents, August 2008 Survey

- 55% - Traffic congestion at/near the top of concerns
- 75% - I-15 is more congested than 2-3 years ago
- 76% - Important to widen I-15 in Utah County
- 65% - Important to replace aging infrastructure
- 56% - Reconstruction inconvenience will last 1–3 yrs
- 28% - Reconstruction inconvenience will last 4–5 yrs

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Public Involvement Division of Responsibilities

Department PI Team	Design-Builder	Shared
Oversight	Designate a POC	Kick off meeting
Status, schedule updates to public (web, email)	Provide information	Participate in events
Crisis communications execution	Provide emergency response contact list	Crisis communication plan
Communication with public	Maintain constituent issues, complaints log	
Media communications	Respond to issues and complaints at UDOT request	
Communications strategy		
PI plan development		
Research/surveys		
Messaging		
Branding		
Web site		
Hotline, email		

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Concurrent UDOT Projects

Shane Marshall| Region 3 Engineering Manager

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Concurrent Projects

Project	Begin Construction	End Construction
Pioneer Crossing	Winter 2008	Fall 2010
2100 North	Summer 2009	Fall 2010
SR-92	Spring 2009	Fall 2010
SR-77	Spring 2008	Fall 2009
Geneva Road: 400 South	Summer 2009	Late 2010
Geneva Road: Corridor	Fall 2010	Fall 2011

Shane Marshall
Region Three Program Manager
801-222-3606
smarshall@utah.gov

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Questions and Answers

UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Afternoon Schedule

Welcome – Dal Hawks

Ground Rules – David Downs

Utilities Presentation – Rod Brocious and Kevin Francis

Third Parties Introductions – Rod Brocious

Questions and Answers – David Downs

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Ground Rules for Questions

1. The Final RFP rules
2. No questions relative to procurement or the RFP during presentation
3. Follow the communication protocol for technical or informational questions

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Third Parties

Rod Brocius | Utilities Engineer
Kevin Francis | Utilities Engineer

UDOT

Utility Coordination

- Design-Build (DB) Teams designate a “Utility Coordinator”
  - Utility Coordinator the principal contact for all related Project utilities activities
  - Utility Coordinator to direct utility questions to Utility Owner and return answers to the DB-Team
  - UDOT has authorized payment to the Utility Owner for two-hours of coordination

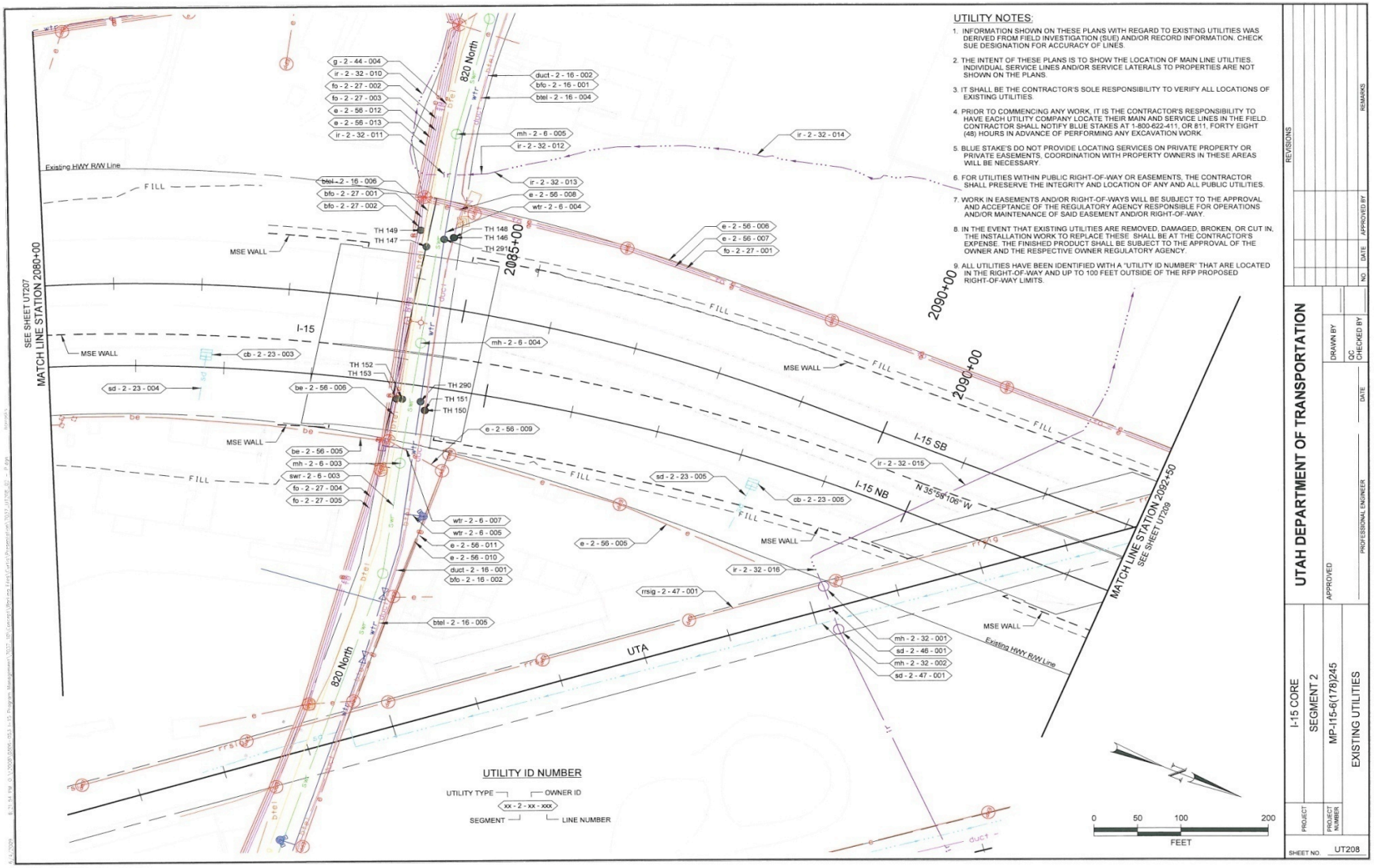
UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Subsurface Utility Engineering (SUE)

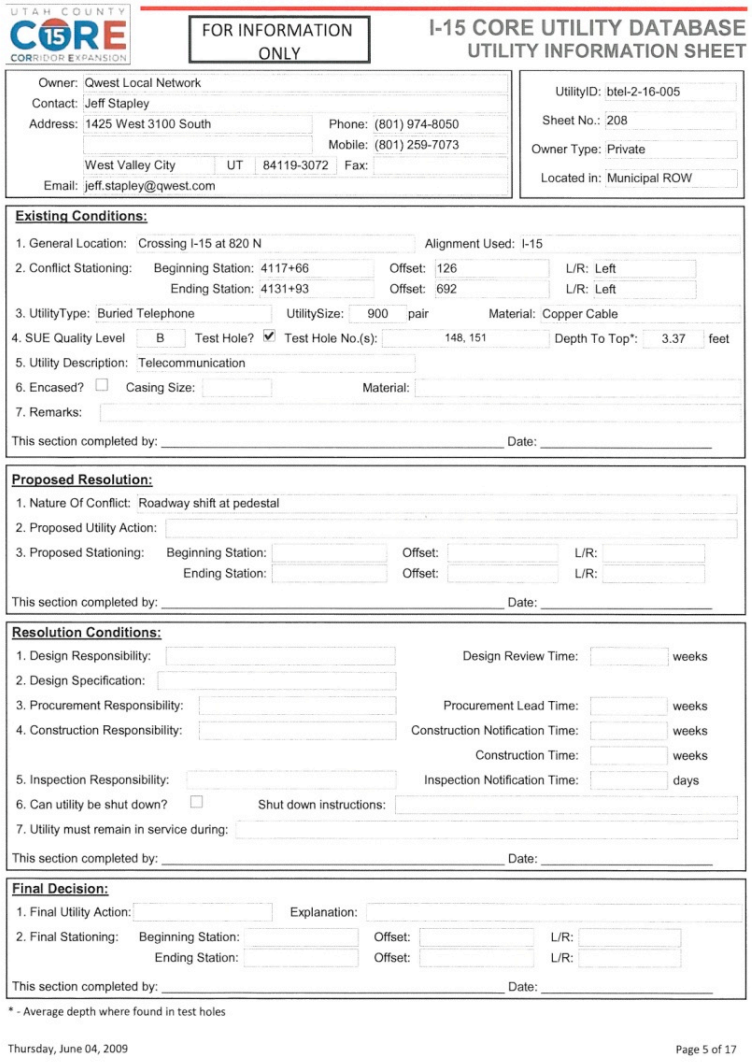
- Quality Level A
  - Information gathered through test hole locations (horizontal and vertical location within 0.5 ft)
- Quality Level B
  - Information gathered by using geophysical techniques (horizontal accuracy within 2 ft)
- Quality Level C
  - Information gathered from surveying visible above ground facilities
- Quality Level D
  - Information gathered solely from existing utility records

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Utility Sheet



Informational Documents – Utility Information Sheet (UIS)



UTAH COUNTY CORE 15 CORRIDOR EXPANSION

FOR INFORMATION ONLY

I-15 CORE UTILITY DATABASE
UTILITY INFORMATION SHEET

Owner:	Qwest Local Network	UtilityID:	btel-2-16-005
Contact:	Jeff Stapley	Sheet No.:	208
Address:	1425 West 3100 South	Phone:	(801) 974-8050
		Mobile:	(801) 259-7073
	West Valley City UT 84119-3072	Fax:	
Email:	jeff.stapley@qwest.com	Owner Type:	Private
		Located in:	Municipal ROW

Existing Conditions:

1. General Location: Crossing I-15 at 820 N — Alignment Used: I-15
2. Conflict Stationing: Beginning Station: 4117+66 — Offset: 126 — L/R: Left
   Ending Station: 4131+93 — Offset: 692 — L/R: Left
3. UtilityType: Buried Telephone — UtilitySize: 900 pair — Material: Copper Cable
4. SUE Quality Level: B — Test Hole? ☑ — Test Hole No.(s): 148, 151 — Depth To Top*: 3.37 feet
5. Utility Description: Telecommunication
6. Encased? ☐ — Casing Size: — Material:
7. Remarks:

This section completed by: _____ Date: _____

Proposed Resolution:

1. Nature Of Conflict: Roadway shift at pedestal
2. Proposed Utility Action:
3. Proposed Stationing: Beginning Station: — Offset: — L/R:
   Ending Station: — Offset: — L/R:

This section completed by: _____ Date: _____

Resolution Conditions:

1. Design Responsibility: — Design Review Time: — weeks
2. Design Specification:
3. Procurement Responsibility: — Procurement Lead Time: — weeks
4. Construction Responsibility: — Construction Notification Time: — weeks
   Construction Time: — weeks
5. Inspection Responsibility: — Inspection Notification Time: — days
6. Can utility be shut down? ☐ — Shut down instructions:
7. Utility must remain in service during:

This section completed by: _____ Date: _____

Final Decision:

1. Final Utility Action: — Explanation:
2. Final Stationing: Beginning Station: — Offset: — L/R:
   Ending Station: — Offset: — L/R:

This section completed by: _____ Date: _____

* - Average depth where found in test holes

Thursday, June 04, 2009 — Page 5 of 17

Engineering Data Part 6 – Test Hole Sheet

Test Hole Summary Sheet

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

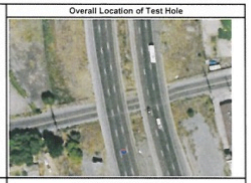
TH #:	151	Completed By:	Troy Harris
Date:	23-Jan-09	QA / QC By:	Shawn Conlin
Project City:	Provo City	HE Project #:	0806-053S
Project County:	Utah	Client Project #:	7037_10

3098 West Executive Parkway, Suite375 Lehi, Ut 84043
Website Address: www.i15core.utah.gov
Phone: 801.341.6400 Fax: 801.341.6497 Efax Line: 888.847.3131

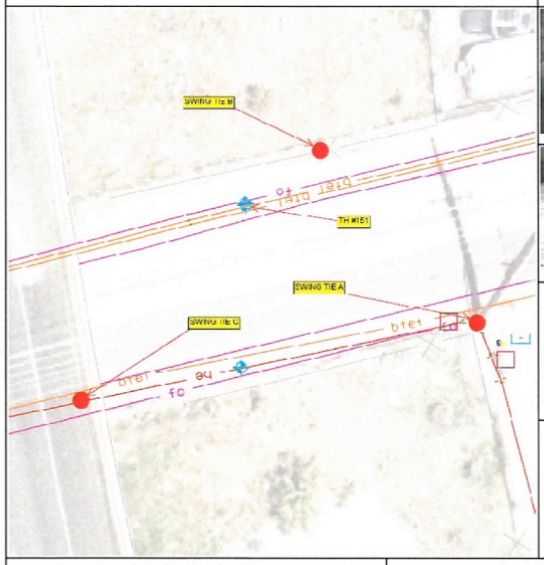
Test Hole Data

Utility Type:	Telephone	Utility Size:	3 @ 4-inch	Utility Material:	PVC
Utility Company:	Qwest	English/Metric:	English	Soil Conditions:	Dirt
Surface Type:	Asphalt	Thickness:	6 inches	Marker Type:	PK Nail
Depth to Top:	3.44	Top Ref. Level:	8.89	Hand Meas. Top:	3.44
Depth to Bottom:	3.77	Bot. Ref. Level:	9.22	Hand Meas. Bot:	3.75
Top Elevation:	4534.395	Mkr. Ref. Level:	5.45	Ref. Elevation:	4537.835
Bottom Elevation:	4534.065	Mkr. Offset From:	Fence Line	Marker Offset:	8.2' RT

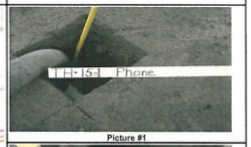
Overall Location of Test Hole



TEST HOLE LOCATION PLAN



TEST HOLE PICTURES



Picture #1

Picture #2

Picture #3

Picture #4

Swing Ties - 3 per Test Hole

Swing Tie	Structure Pulled From	Distance
A	Power Pole	53.7
B	West Gate Post	13.4
C	Southern Bridge Pillar	58.2

General Notes About This Test Hole

Test Hole Summary Sheet

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

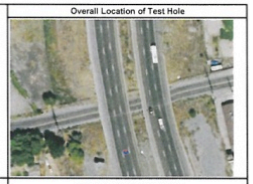
TH #:	148	Completed By:	Troy Harris
Date:	23-Jan-09	QA / QC By:	Shawn Conlin
Project City:	Provo City	HE Project #:	0806-053S
Project County:	Utah	Client Project #:	7037_10

3098 West Executive Parkway, Suite375 Lehi, Ut 84043
Website Address: www.i15core.utah.gov
Phone: 801.341.6400 Fax: 801.341.6497 Efax Line: 888.847.3131

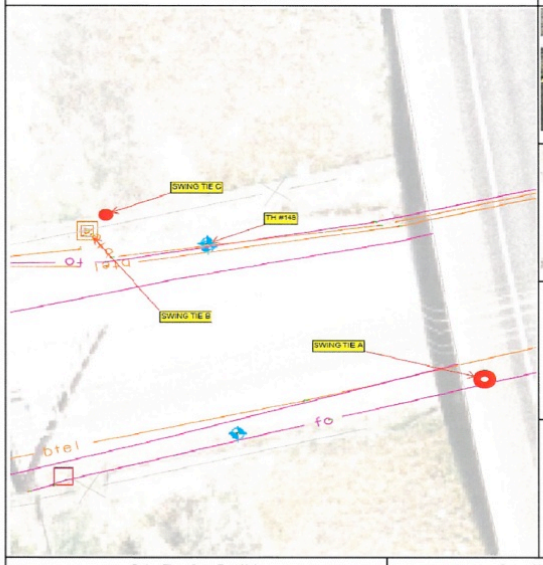
Test Hole Data

Utility Type:	Telephone	Utility Size:	3 @ 4-inch	Utility Material:	PVC
Utility Company:	Qwest	English/Metric:	English	Soil Conditions:	Dirt
Surface Type:	Natural Ground	Thickness:	N/A	Marker Type:	5/8" Rebar & Cap
Depth to Top:	3.29	Top Ref. Level:	8.77	Hand Meas. Top:	3.27
Depth to Bottom:	3.62	Bot. Ref. Level:	9.10	Hand Meas. Bot:	3.60
Top Elevation:	4534.794	Mkr. Ref. Level:	5.48	Ref. Elevation:	4538.084
Bottom Elevation:	4534.464	Mkr. Offset From:	Edge of Oil	Marker Offset:	5.4' LT

Overall Location of Test Hole

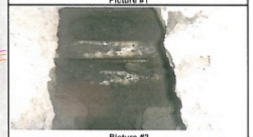


TEST HOLE LOCATION PLAN



TEST HOLE PICTURES

Picture #1



Picture #2

Picture #3

Picture #4

Swing Ties - 3 per Test Hole

Swing Tie	Structure Pulled From	Distance
A	Southern Bridge Pillar	59.4
B	Phone Pedestal	22.6
C	Fence Post	7.9

General Notes About This Test Hole

Informational Documents – Manhole Sheet

Utility Structure Summary Sheet

Structure No.:	MSD 212	Completed By:	JOSH FENN
Date:	1/31/2009	QA/QC By:	
Project City:		HE Project #:	0806-053
Project County:		Client Project #:	7037_10

UTAH COUNTY CORE 15 CORRIDOR EXPANSION
3098 West Executive Parkway, Suite375 Lehi, Ut 84043
Website Address: www.I15core.utah.gov
Phone: 801.341.6400 Fax: 801.341.6487 Efax Line: 888.847.3131

Utility Structure Data

Rim Elev.:	4575.746			Structure Size:		Structure Material:	
				Utility Condition:		Soil Conditions:	
Measure Down				Pipe Size		Pipe Material	
N (ft):		NE (ft):		N (in):	NE (in):	N:	NE:
E (ft):	5.7	NW (ft):		E (in): 12	NW (in):	E: PVC	NW:
W (ft):	5.8	SE (ft):		W (in): 12	SE (in):	W: PVC	SE:
S (ft):		SW (ft):		S (in):	SW (in):	S:	SW:

N

Invert Elevations							
N Inv:		E Inv:	4570.046	W Inv:	4569.946	S Inv:	
NE Inv:		NW Inv:		SE Inv:		SW Inv:	

Structure Location and Address

INVERT PICTURES

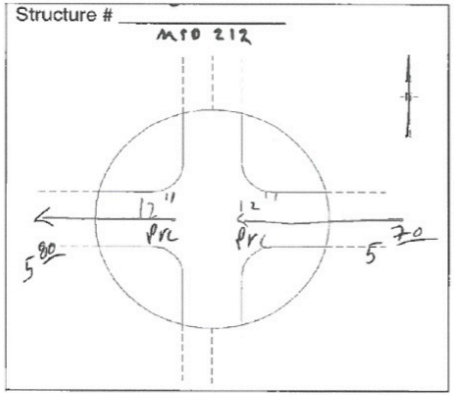
Picture #1 (Structure No.)


Picture #2 (Bottom of Structure)

Picture #3 (As Needed)

Picture #4 (As Needed)

UTILITY STRUCTURE LOCATION PLAN



Swing Ties - 3 per Utility Structure					General Notes About This Utility Structure
Swing Tie		Structure Pulled From		Distance	
A					
B					
C					

Informational Documents – Storm Drain Inlet Sheet

Utility Structure Summary Sheet

UTAH COUNTY CORE 15 CORRIDOR EXPANSION
3098 West Executive Parkway, Suite375 Lehi, Ut 84043
Website Address: www.i15core.utah.gov
Phone: 801.341.6400 Fax: 801.341.6497 Efax Line: 888.847.3131

Structure No.:	SDI 0092	Completed By:	
Date:		QA/QC By:	
Project City:		HE Project #:	0806-053
Project County:	Utah	Client Project #:	7037_10

Utility Structure Data

Rim Elev.:	4566.842	Structure Size:	Structure Material:
		Utility Condition:	Soil Conditions:

Measure Down			Pipe Size			Pipe Material	
N (ft):		NE (ft):	N (in):		NE (in):	N:	NE:
E (ft):	2	NW (ft):	E (in):	12	NW (in):	E: CONCRETE	NW:
W (ft):		SE (ft):	W (in):		SE (in):	W:	SE:
S (ft):		SW (ft):	S (in):		SW (in):	S:	SW:

Invert Elevations

N Inv.		E Inv.	4564.842	W Inv.		S Inv.	
NE Inv.		NW Inv.		SE Inv.		SW Inv.	

N

Structure Location and Address

INVERT PICTURES

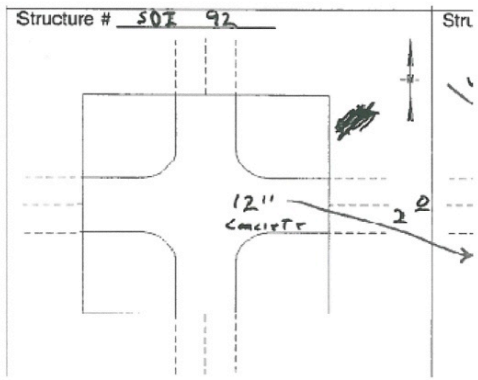
Picture #1 (Structure No.)


Picture #2 (Bottom of Structure)

Picture #3 (As Needed)

Picture #4 (As Needed)

UTILITY STRUCTURE LOCATION PLAN



Swing Ties - 3 per Utility Structure

Swing Tie		Structure Pulled From	Distance
A			
B			
C			

General Notes About This Utility Structure

Utility Structure Summary Sheet

UTAH COUNTY CORE 15 CORRIDOR EXPANSION
3098 West Executive Parkway, Suite375 Lehi, Ut 84043
Website Address: www.i15core.utah.gov
Phone: 801.341.6400 Fax: 801.341.6497 Efax Line: 888.847.3131

Structure No.:	SDI 0091	Completed By:	
Date:		QA/QC By:	
Project City:		HE Project #:	0806-053
Project County:	Utah	Client Project #:	7037_10

Utility Structure Data

Rim Elev.:	4554.151	Structure Size:	Structure Material:
		Utility Condition:	Soil Conditions:

Measure Down			Pipe Size			Pipe Material	
N (ft):		NE (ft):	N (in):		NE (in):	N:	NE:
E (ft):	2	NW (ft):	E (in):	12	NW (in):	E: CONCRETE	NW:
W (ft):		SE (ft):	W (in):		SE (in):	W:	SE:
S (ft):		SW (ft):	S (in):		SW (in):	S:	SW:

Invert Elevations

N Inv.		E Inv.	4552.151	W Inv.		S Inv.	
NE Inv.		NW Inv.		SE Inv.		SW Inv.	

N

Structure Location and Address

INVERT PICTURES

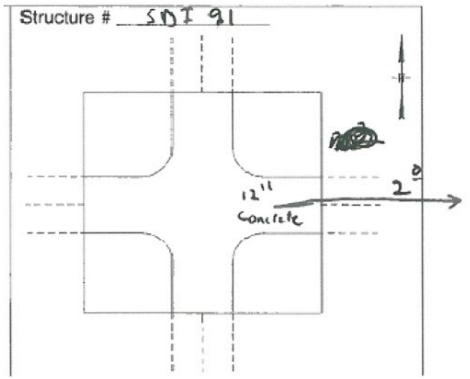
Picture #1 (Structure No.)


Picture #2 (Bottom of Structure)

Picture #3 (As Needed)

Picture #4 (As Needed)

UTILITY STRUCTURE LOCATION PLAN



Swing Ties - 3 per Utility Structure

Swing Tie		Structure Pulled From	Distance
A			
B			
C			

General Notes About This Utility Structure

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Utility Information Database

- Microsoft Access
- Repository for all utility information
  - Owner and contact
  - Location and general conditions
  - Utility type, size, material, description, etc.
  - SUE quality level
  - Conflict and resolution
  - Test hole, manhole, catch basin summary information
- Basis for utility matrix and UIS
- Reports
- Development of Utility Management System (UMS)
  - GIS application based on Utility Information Database

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Utility Database Summary Sheet

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

I-15 CORE UTILITY DATABASE

UTILITY MATRIX

City	Sheet Number	Utility ID Number	Utility Owner	Utility Type	SUE QL	Test Hole?	Size	Units	Utility Description	Carrier Material	Conflict?	Nature of Conflict	Encased?	Casing Size	Units	Casing Material	Risk
Provo	208	wtr-2-6-004	Provo City	Culinary Water	B	☑	16	inch	Piped	Ductile Iron	☑	Fill	☐				High
Provo	208	wtr-2-6-005	Provo City	Culinary Water	D	☐			Piped	Ductile Iron	☐		☐				
Provo	208	wtr-2-6-007	Provo City	Culinary Water	D	☐	8	inch	Piped	Ductile Iron	☐		☐				
Provo	208	swr-2-6-003	Provo City	Sanitary Sewer	B	☐	12	inch	Piped	PVC	☐		☐				
Provo	208	mh-2-6-003	Provo City	Manhole	B	☐	12	inch	Sanitary Sewer Manhole	PVC	☐		☐				
Provo	208	mh-2-6-004	Provo City	Manhole	D	☐			Sanitary Sewer Manhole	PVC	☐		☐				
Provo	208	mh-2-6-005	Provo City	Manhole	B	☐			Sanitary Sewer Manhole	PVC	☐		☐				
Provo	208	btel-2-16-004	Qwest Local Network	Buried Telephone	B	☐	900	pair	Telecommunication	Copper Cable	☑	Roadway shift at pedestal	☐				High
Provo	208	btel-2-16-005	Qwest Local Network	Buried Telephone	B	☑	900	pair	Telecommunication	Copper Cable	☑	Roadway shift at pedestal	☐				High
Provo	208	btel-2-16-006	Qwest Local Network	Buried Telephone	B	☐	50	pair	Telecommunication	Copper Cable	☑	Roadway shift at pedestal location	☐				
Provo	208	duct-2-16-001	Qwest Local Network	Duct Bank	B	☑	4	inch	3-PVC-4.0"	PVC	☑	Fill	☐				High
Provo	208	duct-2-16-002	Qwest Local Network	Duct Bank	B	☐	4	inch	2-PVC-4.0"	PVC	☐		☐				High
Provo	208	bfo-2-16-001	Qwest Local Network	Buried Fiber Optic	B	☐	24	count	Telecommunication	Fiber Optic Cable	☐		☐				High
Provo	208	bfo-2-16-002	Qwest Local Network	Buried Fiber Optic	B	☑	24	count	Telecommunication	Fiber Optic Cable	☐		☐				High
Provo	208	sd-2-23-004	UDOT Region 3	Storm Drain	B	☐	12	inch	Culvert	RCP	☐		☐				
Provo	208	sd-2-23-005	UDOT Region 3	Storm Drain	B	☐	12	inch	Culvert	RCP	☐		☐				
Provo	208	cb-2-23-002	UDOT Region 3	Catch Basin	D	☐					☐		☐				
Provo	208	cb-2-23-003	UDOT Region 3	Catch Basin	B	☐					☐		☐				
Provo	208	cb-2-23-004	UDOT Region 3	Catch Basin	D	☐					☐		☐				
Provo	208	cb-2-23-005	UDOT Region 3	Catch Basin	B	☐					☐		☐				

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Master Utility Agreements (MUA)

- Defines working arrangement between Design-Builder, Utility Owner, and the Department
- Lists responsible individuals for each party
  - Design Responsibility
  - Material Procurement Responsibility
  - Construction Responsibility
  - Inspection Responsibility
- Identify storm drain discharge rates in agreements
- Defines financial responsibilities for each party
- Explains use of Supplemental Agreements
  - Defines scope, schedule and cost for each relocation
- Establishes Betterments

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Current Status of MUA

- Municipal Agreements
  - Received Attorney General (AG) approval
  - Ready for distribution to individual municipalities
- High Profile Utilities
  - Questar Gas Company
    - High Pressure – Currently being reviewed by Owner
    - Intermediate High Pressure – Negotiating working arrangements
  - Rocky Mountain Power
    - Transmission – Draft agreement in progress
    - Distribution – Draft agreement in progress
  - Qwest
    - Received AG approval
    - Ready for distribution to Owner

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

MUA Status cont.

- Telecommunication Agreements
  - Received AG approval
  - Ready for distribution to Owners
- Irrigation Company Agreements
  - Received AG approval
  - Ready for distribution to Owners

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

What will be provided in the RFP

- Utility sheets
- Test hole sheets
- Manhole sheets
- Utility matrix summary sheets
- Utility information sheets
- Master Utility Agreements
  - Supplemental agreement sample
  - Betterment agreement
  - Betterment list
- Utility contacts and allocation of responsibilities

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Repeating Agenda

- Introduction of third-party representative
- Discussion by third-party
- Request for DB point of contact

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Third Party Attendees

- Union Pacific Railroad
- Utah Transit Authority
- Questar
- Rocky Mountain Power
- Qwest
- Corridor cities: American Fork, Pleasant Grove, Lindon, Orem, Provo

UTAH COUNTY
CORE 15
CORRIDOR EXPANSION

Union Pacific Railroad

Michael Seely

UDOT

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Railroad Information

RR Line	Location	Trains/ Day	Avg. Speed
UPRR Provo Subdivision	"S" Curves, Provo Center Street	15	40 mph
UPRR Provo Industrial Lead	Geneva Road	3 to 4	15 mph
UTA FrontRunner South (2012)	"S" Curves, Provo Center Street	68	79 mph (max)

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Clearance and Easements

- Temporary Clearances: 12 ft Horizontal, 21 ft Vertical
- Permanent Clearances
  - Freight Rail: 25 ft Horizontal, 23 ft 6 in Vertical
  - Passenger Rail: 25 ft Horizontal, 14 ft Vertical
- Temporary haul roads on railroad property
- Early coordination
- Signal Line adjustments
- Easements and ROW

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Track Time Availability

- Form "B" availability on UTA lines once in service will be extremely limited
- UTA work windows may be limited to 1 to 4 am
- Contractor Orientation REQUIRED prior to entering railroad property.
- Flagmen or other track safety measures
  - Required at all times
  - Availability is limited for both railroads (especially UTA)
- Coordination with both UTA and UPRR will be key to obtaining track time.

UTAH COUNTY CORE 15 CORRIDOR EXPANSION

Railroad Contact Information

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Manager, Special Projects,
Public & Private
Union Pacific Railroad
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Salt Lake City, UT 84101
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F. 402-233-3066
E. jmarshal@up.com

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Manager of Engineering and
Construction, Commuter
Rail
Utah Transit Authority
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E. smeyer@rideuta.com

For More Information:

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1-888-i15core
(1-888-415-2673)

Email:
i15core@utah.gov

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www.i15core.utah.gov